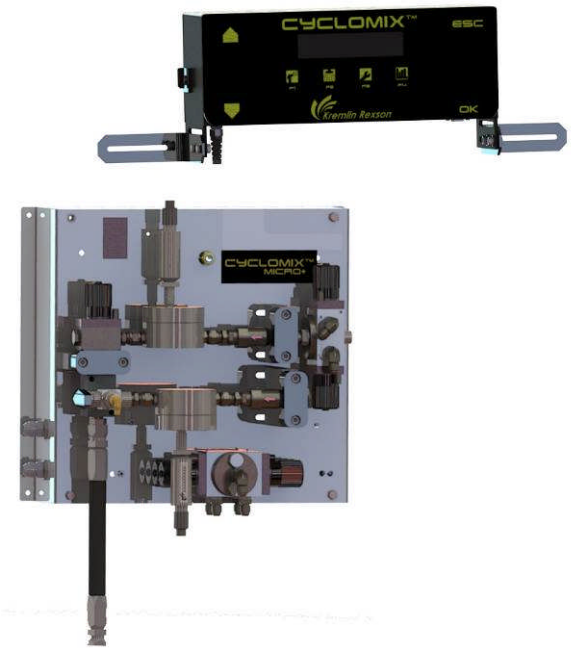


INSTRUCTION MANUAL

CYCLOMIX™

MICRO, MICRO +

MICRO + PH

MIXING MACHINE

Manual : 1412 573.191.112

Date : 15/12/14 - Cancels : 25/06/13

Modif.: Update

TRANSLATION FROM THE ORIGINAL MANUAL

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

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

KREMLIN - REXSON
150, avenue de Stalingrad
93 245 - STAINS CEDEX – France
☎ *: 33 (0)1 49 40 25 25* *Fax : 33 (0)1 48 26 07 16*

www.kremlin-rexson.com

INSTRUCTION MANUAL

CYCLOMIX™ MICRO, MICRO + & MICRO + PH MIXING MACHINE

TABLE OF CONTENTS

ADDITIONAL DOCUMENTATIONS :

Declaration	EC declaration of conformity	Doc. 578.034.130-UK
Annexes	Pneumatic & electric diagrams Mixing ratio chart	Doc. 573.191.120
Spare parts	Cyclomix™ micro	Doc. 573.359.050
	Color changer	Doc. 573.186.112 + 573.187.050 + 573.188.050
	Cyclomix™ : Flowmeters and sensors replacement	Doc. 573.705.070

Dear Customer, You are the owner of our new CYCLOMIX^{TM} MICRO mixing machine and we would like to take this opportunity to thank you.

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.

1. GENERAL SAFETY INSTRUCTIONS

The CYCLOMIX^{TM} MICRO mixing machine shall be installed outside the explosive area. It shall be installed in a safe area (non-explosive area according to the ATEX directive - refer to § 6).

The display unit must be moved 1 m / 3.3 ft away from the fluid module and not be installed above that one.

WARNING : Any misuse of the equipment or accessories can damage them, result in serious body injury, fire or explosion hazard and reduce the equipment working life. Read carefully the safety instructions hereafter.

The personnel involved in operating and servicing this equipment must be aware of all safety requirements stated in this manual. The workshop supervisor must be certain that the personnel has perfectly understood the safety instructions and complies with them.

Read all instruction manuals as well as the tags of the equipments before operating the equipment.

Read local safety instructions and comply with them.

■ INSTALLATION REQUIREMENTS

➲ **Ground the equipments.**

Use the equipment only in a well-ventilated area to prevent from serious body injuries, fire and explosion hazards. Do not smoke in the spray area.

Never stock paints and solvents in the spray area. Always close the pots and the tins.

Keep the spray area clean and free from debris (solvent, rags,…).

Read paint and solvent manufacturer's technical instructions.

Spraying of some materials may result in hazardous working conditions. To protect the operator, respirator mask, hand cream and glasses are required (Refer to chapter "Safety equipment" of KREMLIN selection guide).

■ EQUIPMENT REQUIREMENTS

The operating pressure of these equipments is particularly high. Consequently, some precautions must be taken in order to prevent from accidents and from unsafe working conditions.

➲ **Never exceed the components maximum working pressure of the equipment.**

HOSES

Do not use hoses with a maximum burst-proof pressure less than four times the maximum service pressure of the pump (see data sheet).

Be certain hoses are not crimped, leaking and not unrolled.

Be certain hoses are in good conditions and showing no evidence of damage.

➲ **Use only air hose with static conductor to connect the pump with the spray gun.**

All fittings must be tight and in good condition.

PUMP

➲ **Ground the equipment (use the connection on the pump).**

Do not use any product or solvent incompatible with the pump components.

Use the appropriate solvent for the material being sprayed to increase the equipment working life.

GUN

Never wipe the end of the tip with the fingers.

Always depressurize air and fluid hoses before carrying out any servicing on the gun.

Never point the spray gun at anyone or at any part of the body.

CYCLOMIX™ MICRO

- **Do not install the machine in an explosive area. It shall be in a safe area (non explosive area).**
- **The display unit must be moved 1 m / 3.3 ft away from the fluid module and not be installed above that one.**
- **Connect the control box to the mains supply fitted with a ground.**
- **The fluid module is fitted with a ground. Connect the ground cable to earth.**
- **Do not use any product or solvent incompatible with the machine components.**
- **Use the appropriate solvent for the material being sprayed to increase the equipment working life.**
- **Wear protective glasses to protect the operator from possible discharges during the handling of the CYCLOMIX ™ MICRO machine test valves.**
- **Do not use electrostatic spraying for water-based paints with a resistivity lower than 5 MΩ.**

■ MAINTENANCE REQUIREMENTS

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

- **Never modify these equipments.**

Check them daily, keep them in a good condition and replace the worn parts **only with KREMLIN parts.**

Before cleaning or removing components of the equipment, it is compulsory :

1 - to stop the air supply,

2 - to open the gun fluid circuit to depressurize the hoses,

3 - to shut off the machine electrical supply,

4 - to open the drain valves.

■ **ENVIRONMENT**

	The equipment consists of a label plate with the name of the manufacturer, the equipment part number, the interesting informations to use correctly the equipment (pressure, voltage…) and the above pictogram. The equipment is designed with and consists of high quality materials and components which can be re-used. The 2012/19/UE European Directive covers all equipments with a crossed-out bin pictogram. Please inform yourself about the collection systems for electric and electronic equipments. Please act according to local rules and **do not throw the old equipments with household wastes.** A correct disposal of the old equipment will help prevent negative consequences for the environment and health.

2. DESCRIPTION

The CYCLOMIX^{TM} MICRO mixing machine is designed for applying two-component paints and varnishes (water-based or solvanted).

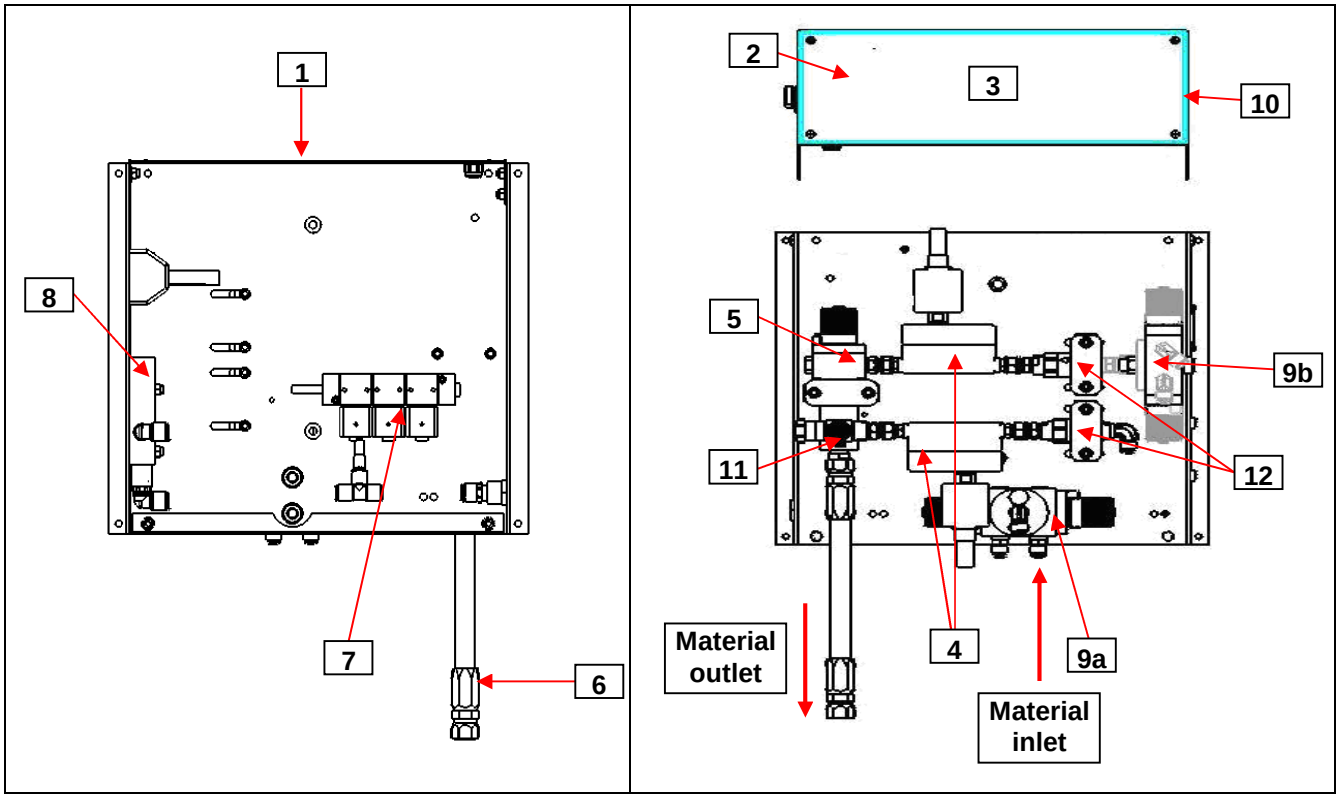
It is available for 2 technologies of application : pneumatic spraying, AIRMIX ® spraying (maximum pressure : 172 bar / 2500 psi).

It comes in an independent form. It is only supplied with compressed air (maximum 6 bar / 87 psi) and a mains supply (115V / 230V).

It consists of :

- a control bay (2) with automaton and electromagnetic control components,

- a fluid module (1) that receives the volumetric meters, the automatic valves for materials and solvents and electropneumatic control components.



Captions :

1	Fluid module
2	Control bay
3	Display unit
4	Volumeters
5	Automatic valve
6	Mixer

7	Electrovalves
8	Air flow switch
9	Color changer 9a : base CTM 9b : cata CTM
10	Protective housing
11	Three-way valve
12	Non-return valve

CABINET FRONT PART

Ind.	Description	Function
-	Red LED	Fault
-	Orange LED	Operating (except production)
-	Green LED	Production

The machine is totally programmable via a man/machine interface. The screen indicates continuously by a simple identification, the statuses of the machine and enables to have access to the essential functionalities: ON / OFF - FLUSHING -PRODUCTION

The informations relating to the operating of the machine (real-time display of the ratio, of the consumption…) can be read on the LCD screen.

The CYCLOMIX™ MICRO saves continuously the instantaneous consumptions of base, catalyst and solvent as well as the total consumptions and the emissions of Volatile Organic Compounds (VOC) during the operating of the machine.

On the machine bay, there is a cord grip. It enables to supply electricity to the machine via a safety isolating switch (115V / 230V).

Do not use electrostatic spraying for water-based paints or paints with a resistivity lower than 5 MΩ.

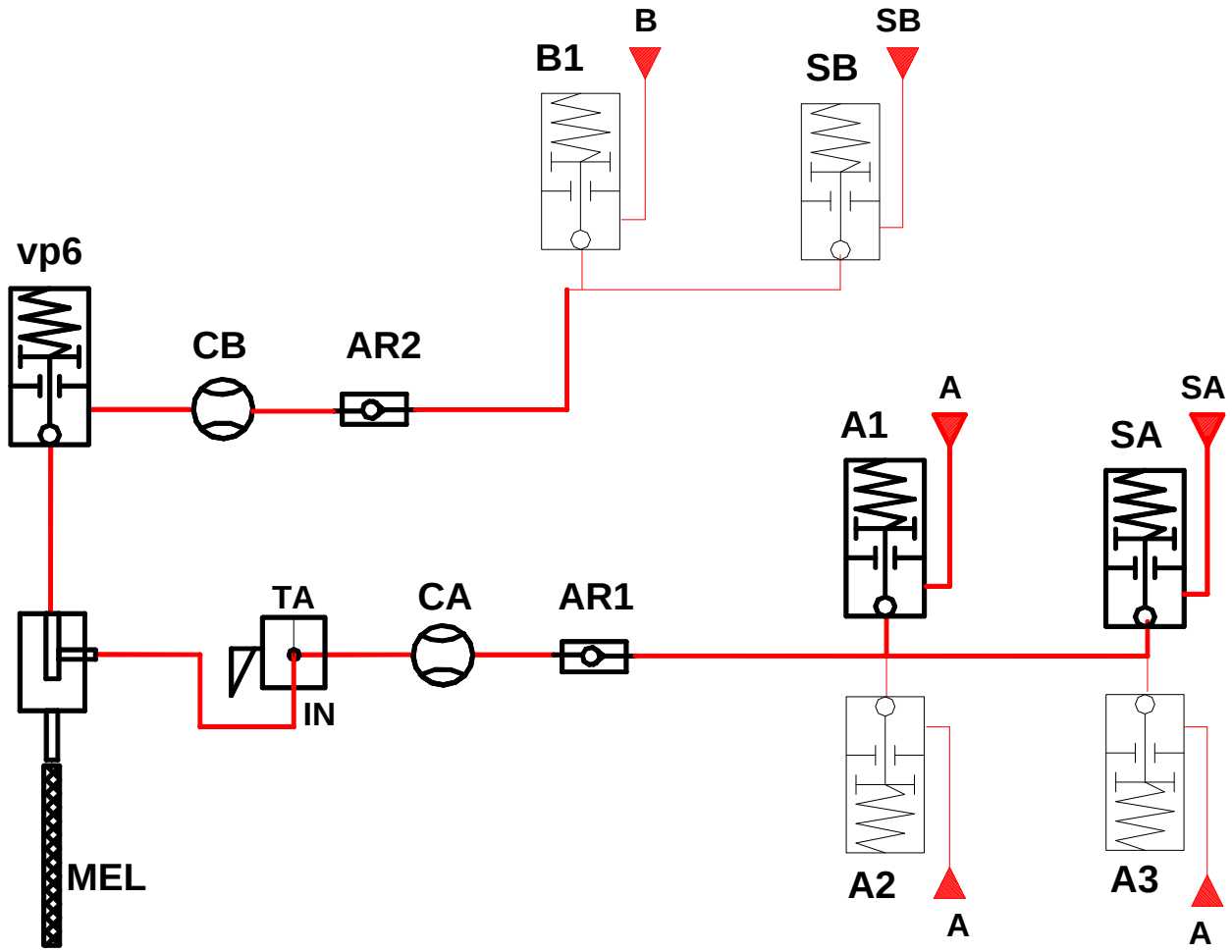
3. OPERATING PRINCIPLE

The 2 BASE and CATALYST materials are sent to the mixing machine from 2 pumps or pressure tanks.

The base crosses a piloted valve (A1) and a meter (CA), the catalyst is directly sent to the meter (CB). The cycle begins with the opening of the BASE valve (A1). The 2 meters send their informations to the computer that shuts off the catalyst valve (VP6) when the computerized mixing ratio is reached.

The mixing process is based on a base constant flow. The catalyst flow is injected low under high frequency. The injection is made directly into the base flux at the mixer level.

The automaton checks continuously the mixing ratio and if it notices a fault that it cannot correct, an alarm is activated. The machine goes on safety mode.



A1	Base piloted valve (A)
SA	Base solvent piloted valve(SA)
A2	Base piloted valve (depending upon version)
A3	Base piloted valve (depending upon version)
B	Catalyst piloted valve (depending upon version)
SB	Cata solvent piloted valve (depending upon version)

IN	Three way-valve to mixer
TA	Sampling outlet for the base
CA	Base meter
CB	Cata meter
VP6	Injection piloted valve
MEL	Mixer

4. TECHNICAL FEATURES

Number of colors : 1 or 3 Number of catalyst : 1 Solvent paints compatibility Piloting via magnet on the control bay Print kit (connection to a printer)	Voltage : 230V / 115V - 10W Minimum air pressure : 4 bar / 58 psi Fluid pressure: from 2 to 175 bar / from 29 to 2538 psi Weight : 25 kg / 55 lb Dimensions : - control bay : 370 mm x 172.5 mm x 110 mm / 14.6" x 6.8" x 4.3" - fluid module : 370 mm x 460 mm x 110 mm / 14.6" x 18.1" x 4.3" Fluid circuits (base and cata) made of stainless steel for the Cyclomix™ Micro and Micro+. CATALYST circuit made of 316 L stainless steel Circuit for the Cyclomix™ Micro+ PH. Adjustable mixing ratio : 1/0 and from 0,6/1 to 20/1 (BASE volume / CATALYST volume) (0% and from 166% to 5%) Measure precision : 1 % Mixed fluid flow : from 100 to 2000 cm3/mn Solvent flow : 7000 cm3/mn Fluid viscosity : from 30 to 5000 cps
Mixing permanent check Adjustable threshold alarm Adjustable pot-life indicator Automatic mixing control cycle Automatic flushing cycle (time) VOC display Total indicator for base, catalyst and solvent consumption	**OPTION :** *Auto-wash (gun support) You cannot go to production with the auto-wash, no connection to the machine. * Connecting cable (5 m). * Pickit 2 (Electronic programming kit) : the kit allows you to update the program on the electronic cards.
Connections : - **Air** : Inlet : F 1/4 BSP / Outlet : F 1/4 BSP **- Material :** : Inlet : M 1/2 JIC / Outlet : M 1/2 JIC	

NOTA : The version 2.82 is only compatible on electronic boards with version higher than V.2.32. Here after an overview of major versions :

Kinf of processor - Electronic card	Manufacturing date first units	Soft version	Presence of error 6	Soft compatibility with 2.82 latest version
PIC 18F4520	-	2.31	-	-
PIC 18F4620	09 Y 1001	2.32	-	Yes
	10 Y 1133	2.6	Yes	Yes
	14 Y 1152	2.82	Yes - Can be setup with P12	Yes

Different versions of the CYCLOMIX™ MICRO :

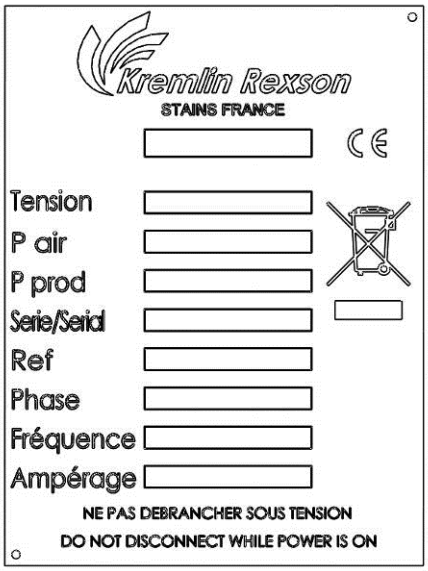
Configurations	BASE	CATALYST
CYCLOMIX™ MICRO	1 base + 1 solvent	1 cata
	3 bases + 1 solvent	1 cata
CYCLOMIX™ MICRO +	1 base + 1 solvent	1 cata + 1 solvent
	3 bases + 1 solvent	1 cata + 1 solvent
CYCLOMIX™ MICRO+ PH	1 base + 1 solvent	1 cata + 1 solvent
	3 bases + 1 solvent	1 cata + 1 solvent

The control bay is the same for all the versions of the CYCLOMIX™ MICRO.
You can change the configuration displacing the shunt located on the µ card (J7 terminal) - (refer to"Annexes" - electric diagram, folio 2).

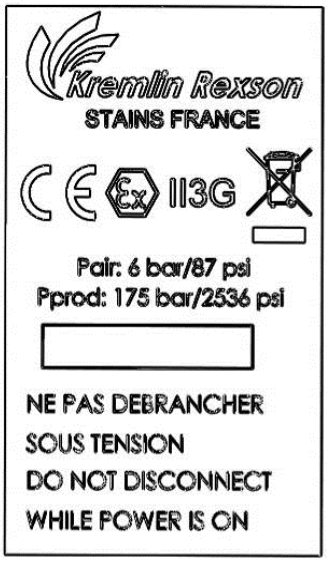
5. INSTALLATION

■ DESCRIPTION OF THE LABEL MARKINGS

The CYCLOMIX™ MICRO machine is fitted with 2 label markings : a label marking on the control bay and the other one on the fluid module.



Marking label on the control bay
(bay located **outside** the spray booth)



Marking label on the fluid module
(fluid module located **outside** the spray booth → marking in accordance with the ATEX directive)

Marking in accordance with the ATEX directive

KREMLIN REXSON STAINS FRANCE	Name and address of the manufacturer
CE Ex II 3 G	**II** : group II **3** : class 3 Surface equipment meant to area where explosive atmospheres due to gas, vapours, mists are not liable to appear from time to time in usual operating or if they appear nevertheless, it is for a short duration. **G** : gas
Tension	CYCLOMIX™ MICRO machine voltage
P air : 6 bar / 87 psi	Maximum air pressure
P prod : 175 bar / 2536 psi	Maximum fluid pressure
Série / Serial	Number given by KREMLIN REXSON. The two first numbers indicate the manufacturing year.
Ref	CYCLOMIX™ MICRO machine part number
	Environmental Indication (refer to § 2 - Environment)
Phase	Single phase
Fréquence	50-60Hz / Mains frequency
Ampérage	Maximum current used

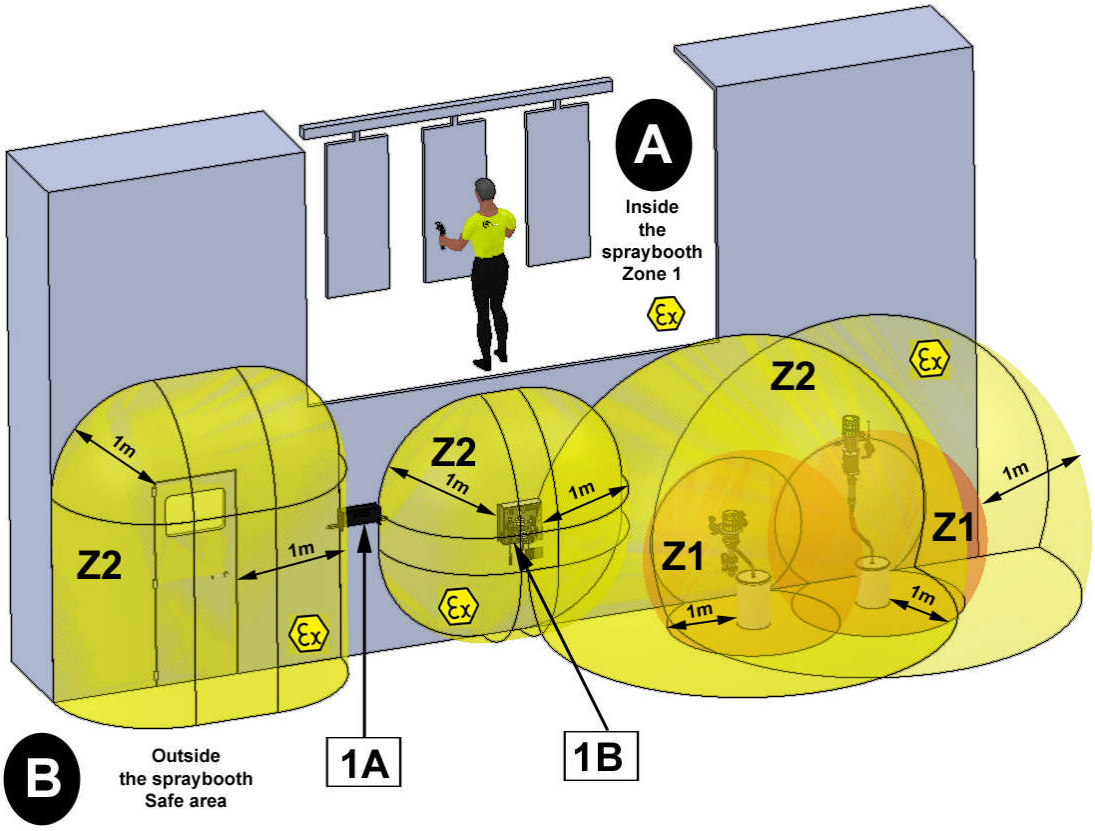
Caution!
The CYCLOMIX™ MICRO mixing machine must be installed outside the explosive area. It must be installed in a safe area (non explosive area according to the ATEX directive).

The display unit must be moved 1 m / 3.3 ft away from the fluid module and not be installed above that one.

The control bay must be connected to a mains supply fitted with a ground.

The ground of the fluid module must be grounded.

■ INSTALLATION DIAGRAM



A	Explosive area : area 1 (Z1) or area 2 (Z2) (spray booth)
B	Non explosive area (safe area)
1A	CYCLOMIX™ MICRO control bay
1B	CYCLOMIX™ MICRO fluid module
2	Pumps + Accessories

The 1 m distance indicated in the diagram is given for your information only and KREMLIN REXSON shall not be liable for it. The user is liable for the exact delimitation of the zones which depends on the materials used, the material environment and the use conditions (refer to EN 60079 -10 standard).

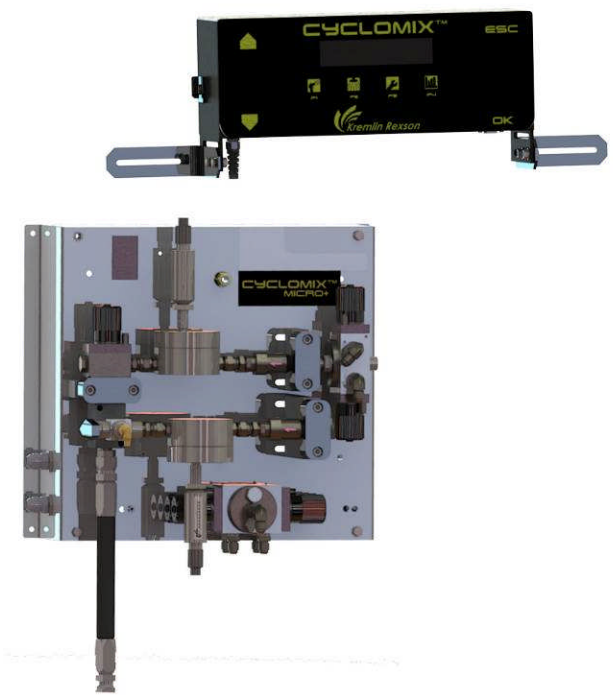
The 1 m distance can be adapted if the analysis the user carries out calls for it.

■ IMPLANTATION

There are different ways to install the CYCLOMIX™ MICRO to answer to the majority of installations. Nevertheless, some installations are forbidden because dangerous.

The display unit must be moved 1 m / 3.3 ft away from the fluid module and not be installed above that one.

Fixing the display unit on the fluid module is forbidden.



Correct installation :
the display unit is not fixed to the fluid module.

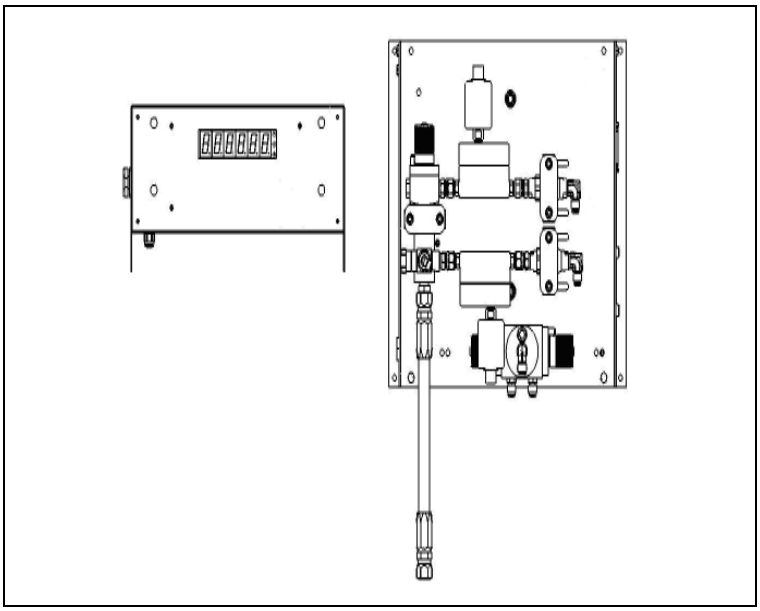
Incorrect installation :
the display unit is fixed to the fluid module.

Correct installation :
The display unit is installed in a safe area.
The fluid module is in a safe area or Z2.

Incorrect installation :
the display unit and/or the fluid module are installed in the spraybooth.

Assembly for piloting outside the booth :

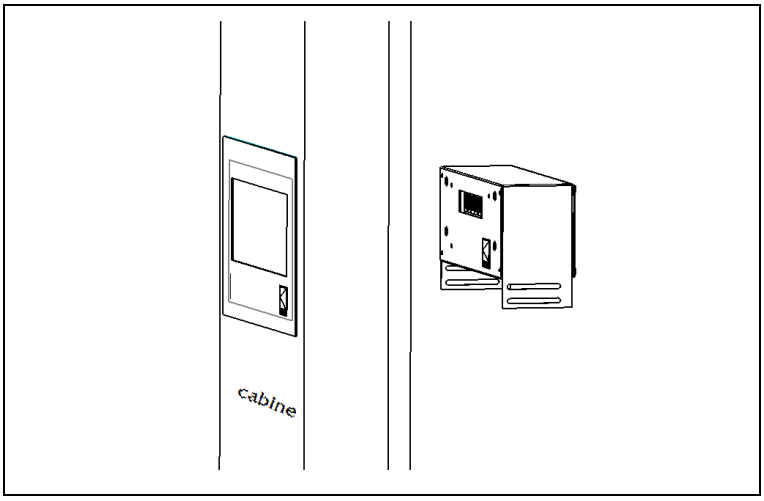
The machine gets two parts to enable the mismatch of the control part (5 m / 196.85 ft cable between the 2 components).



Assembly for piloting in the booth :

There is a control kit in booth (available in option).

That kit enables to fix the control box on the spray booth by means of a glass sheet and to pilot that one inside. The piloting is carried out thanks to a magnet provided with the machine. The distance between the control box and the fluid part is of 5 m / 196.85 ft (cable provided with the machine).



■ CONNECTION OF THE CONTROL BAY AND OF THE FLUID PART

➲ The CYCLOMIX™ MICRO must be connected to a dry and clean compressed air (minimum 4 bar / 58 psi) and to a single phase electric supply (115 V / 230V) connected to an isolating switch. The network ground will be connected in the control bay on a contact provided.

⚠ **Before connecting the CYCLOMIX™ MICRO, be certain the mains voltage is the same than the one of the machine (230 V).** If no, open the electric box removing the protective housing (10) and shift the staple (230V → 115V).

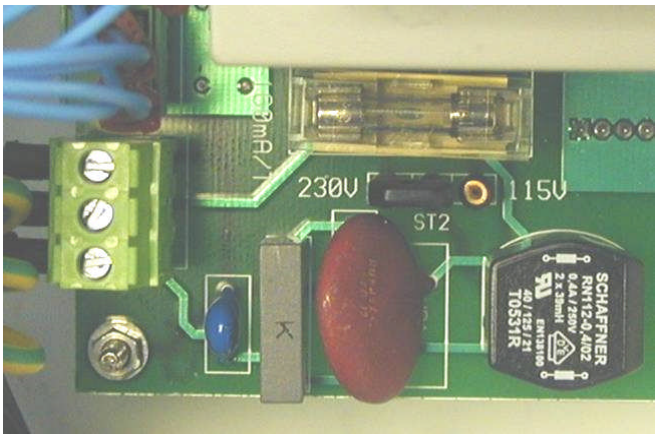
The air connection of the machine is Female 1/4 G (air inlet = R1 and air outlet = R2).

The connection between the control bay and the fluid module is carried out via the provided cable, length 5 m / 196.85 ft. For lengths up to 5 m / 196.85 ft connect the cables between them (male-female).

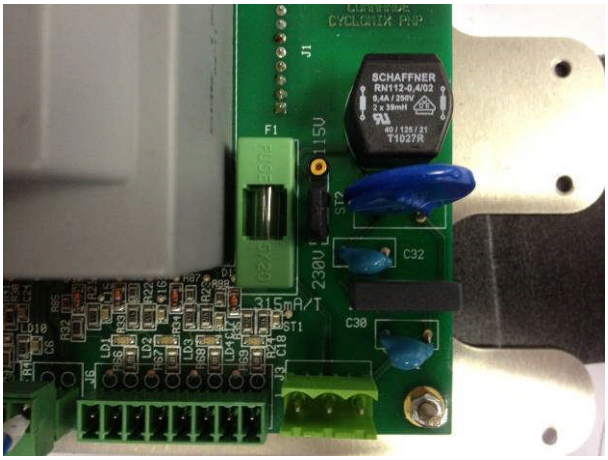
⚠ The connection between the two cables must not be in the explosive area.

A valve fitted with fittings is supplied with the machine. It will be mounted on the gun air inlet : it enables to shut off quickly the fan air (priming, flushing stage).

Fuse 160 mA
for machine with serial number < to 09Y1080



Fuse 315 Ma
for machine with serial number >to 09Y1080



<u>Connection of the fluid inlets :</u>

The fluid inlets are M 1/2 JIC.

➲ **We advice you to install AIRMIX filters on the fluid inlets (catalyst and base).**

The base(s) and the base solvent are connected on the color changer installed on the machine.

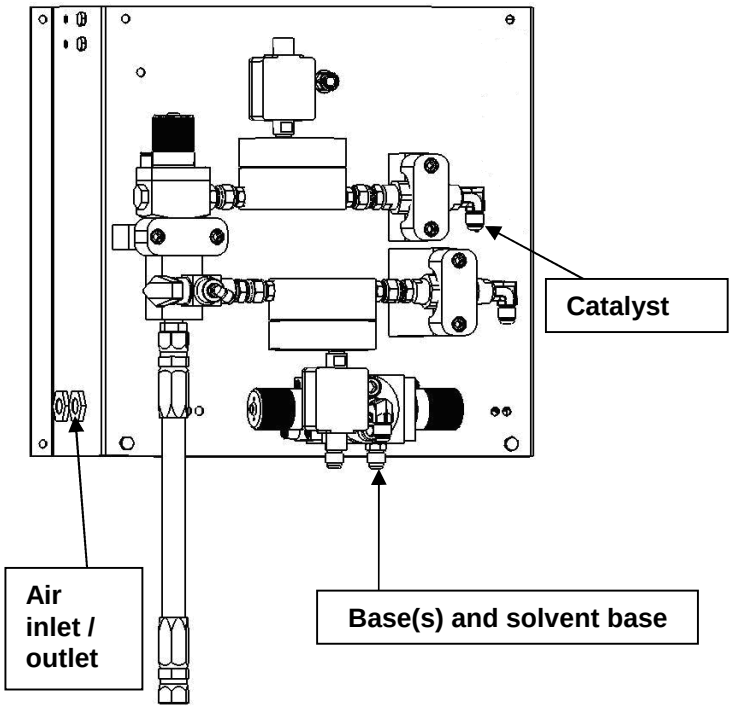
The catalyst is connected :

- directly on the elbow installed before the non-return valve,

- or on the color changer (cata and cata solvent) installed in the machine.

It depends upon the configuration of the machine.

The air connection is made on the two G 1/4 connecting parts.



Assemble filters at the outlet of the BASE and CATA pumps.

Assemble pressure regulators at the outlet of the BASE and CATA pumps.

Install the fluid and air hoses between the pumps and the CYCLOMIX™ MICRO, and between the CYCLOMIX™ MICRO and the gun. When choosing the fluid hoses, comply with the pressures delivered by the pumps. For the air hoses, install **non-static** hoses.

Unscrew the regulators before supplying air to the installation.

Check that the three way-valve is in the IN fluid circuit sense and not in the TA circuit sense.

Nota : To connect the SOLVENT pump (CATA) to the CYCLOMIX MICRO machine :

- choose a machine set up with 1 catalyst and one cata solvent,
- or disconnect the CATA hose at non-return valve level (CATA) of the machine and replace it connecting the SOLVENT hose (CATA).

6. OPERATING

■ DRIVING FROM THE MACHINE

SCREEN

The different menus and the informations relating to the machine are displayed on the alphanumeric screen.

KEYBOARD

ESC	That key enables to quit the menus or the different modes (production, flushing, parameters).
↵	That key enables to enter in the different menus or to validate a value of parameter.
▲	That key enables to shift from a menu to another and to increase the value of a parameter during modifications of value.
▼	That key enables to shift from a menu to another and to decrease the value of a parameter during modifications of value.

The keyboard is used thanks to a magnet provided with the machine. That piloting mode enables to drive the machine inside the booth if the box is installed behind the booth glass. That technology enables the operator to save time and to carry out his work from the application place.

■ SWITCHING ON THE MACHINE

The placing of the system into operation requires that the BASE, CATALYST and SOLVENT drums are full enough to ensure the production.

Connect the gun before placing the system into operation.

Supply air to the CYCLOMIX™ MICRO (minimum 4 bar / 58 psi).

Supply air to the air regulators of the pumps (BASE, CATALYST, SOLVENT).

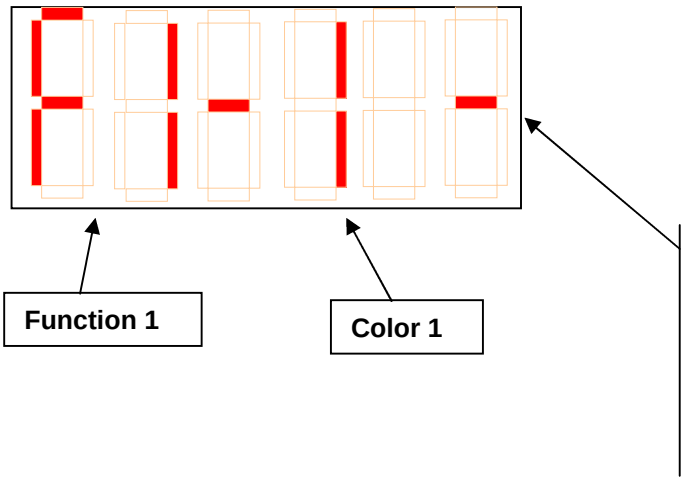
Switch on the control bay (switch located on the side of the bay).

When switching on the control bay, a menu is displayed on the screen.

Nota : Parameters have been programmed in the factory before the delivery of the machine. You must adapt the parameters to the use. They must be modified by an authorized person (refer to list of parameters).

7. FIRST SWITCHING ON

STANDARD MENU



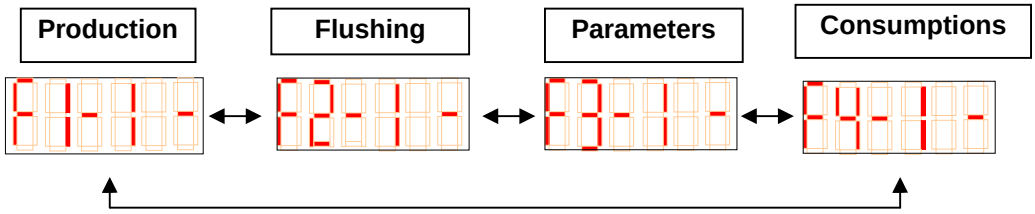
Countdown of the fluid life time.
(countdown from 9 to 0; 9 represents 90% of the remaining time before the regeneration).

A line is visible when the CYCLOMIX™ MICRO is flushed.

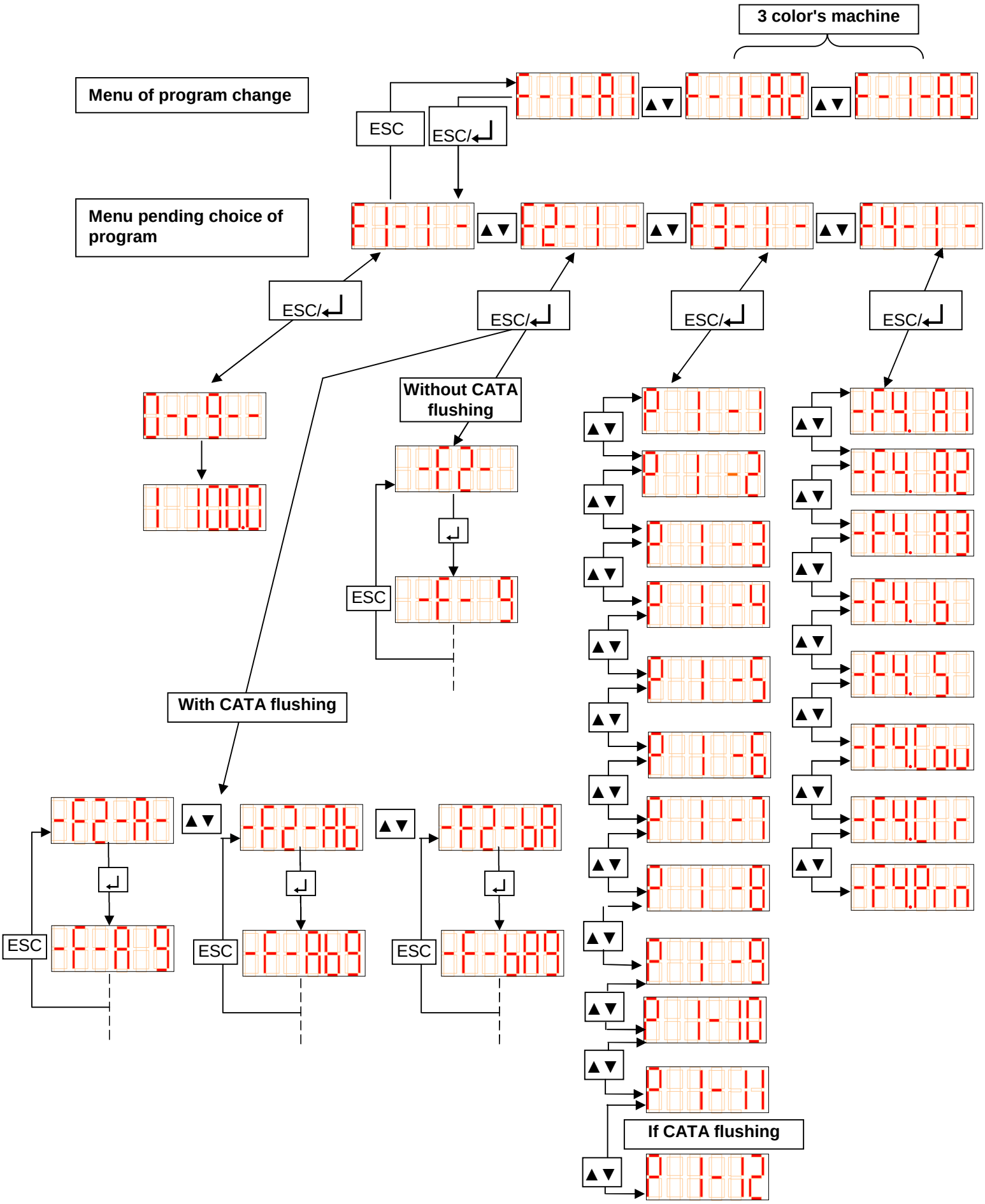
When switching on, the machine is waiting. The 'F-1' menu corresponds to the shift to the production mode.
There are 4 different menus : they enable to control the CYCLOMIX™ MICRO.

- F-1 : production
- F-2 : flushing
- F-3 : parameters
- F-4 : consumptions

To surf from a menu to another, you must move placing the magnet on the sensors indicated with '▲/▼'.
The menus scroll as follows :



Arborescence of the menus



8. FIRST PLACING INTO OPERATION

During that first placing into operation, it is compulsory to have all the pumps into solvent as well as the machine to ensure the good quality of the fluid get by the CYCLOMIX™ MICRO.

The fluid pressure must not exceed 20 bar / 290 psi.

We advice you to install the TB fitting (provided with the machine) instead of the mixer.

■ FLUSHING OF THE PUMPS AND OF THE MACHINE INTO SOLVENT

- Carry out the connections indicated at § 6 (INSTALLATION).
- Check that the three way-valve is turned towards 'TA'.
- Remove the static mixer to install, instead of it, the adapter fitting (marked TB, F 3/4 JIC - F 1/4 G).
- Start the pumps with solvent and increase the fluid pressure to 1 bar / 14.5 psi.
- On the page of the display main menu, input "PRODUCTION MODE" (F-1 then ↵).
- Do not change the factory parameters for the moment.
- Make the machine mix until the solvent flows out clean. During that stage, the machine must be in fault due to air presence into hoses. In case of alarm, acquit, then go to production mode.
  CAUTION : shut off air turning the valve that has been mounted to the gun air inlet (Cf. § 6)
- Quit the production mode passing to ESC.
- Repeat the 4 stages previously indicated, when using a 3 shades' CYCLOMIX™ MICRO, with all the shades (A2 and A3).

■ START-UP OF THE MACHINE

- Check that the three way-valve is turned towards 'TA'.
- Start the pumps.
- Pass to production and let the fluid flow until it flows clean. In case of alarm, acquit then go to production.
  CAUTION : shut off air turning the valve that has been mounted to the gun air inlet (Cf. § 6)
- Repeat the stages previously indicated, when using a 3 shades' CYCLOMIX™ MICRO, with all the shades (A2 and A3).
- Carry out a flushing before cleaning the 3 way-valve. As soon as the solvent is clean, pass to ESC.

From now on you can enter your parameters of application.

After that first placing into operation, you must carry out a flushing to clean the 3 way-valve. During the flushing, flush correctly the TA side of the valve, then turn the 3 way-valve to IN to flush the fitting at the outlet of the injector.

Once the first placing into opeartion and the flushing carried out, install the mixer and leave the 3 way-valve on IN.

9. APPLICATION PROGRAMMING (F3)

To alter the parameters of the CYCLOMIX^{TM} MICRO, go to F3, then validate. To shift from a parameter to another, use the arrows ▲ or ▼ **.**

Select the parameter to alter. Depress the key ↵, then the arrows ▲ or ▼ to increase or decrease the value. Activate ↵ to validate the new value or ESC to cancel.

To quit a parameter, activate **ESC**.

To quit the PARAMETERS menu, activate **ESC**.

When using a 3 shades' machine, you must select the shade and alter later on the parameters.

The parameters are pre-programmed in the factory. They must be modified (by an authorized person) to adapt themselves to the material).

■ PASSWORD

When you start the machine for the first time the access code of the menu `Parameters' is deactivated, everyone is able to modify the machine's parameters.

To activate this access code you have to :

- enter in the parameter 0 of the menu F3 : F3-- → « key ↵» → P -- 0 → « key ↵». The code '0000' appears, it's the code present by default in the machine.

- change the code by using the arrows ▲ or ▼ and the «key ↵» for each digit which compose this code.

Once the access code was validated, the access is protected by the password. Only the people who know this password and those which know the administrator code '5555' will be able to reach the menu `Parameters'.

Each time a user wants to enter in the menu 'Parameters' the password will be required: C 0---.

The user shall enter the password by using the arrows ▲ or ▼ and the «key ↵» for each digit which compose this code :

- If the entered code is correct, the following fonts ------ appear.

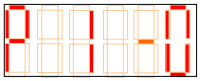
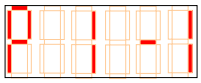
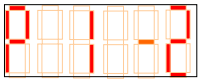
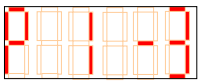
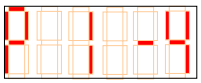
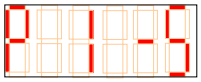
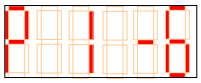
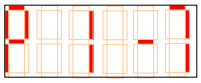
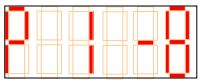
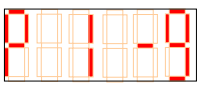
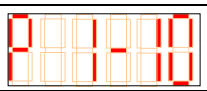
- If the entered code is incorrect, the word 'Error' appears and the machine allows you to enter the password again (Press 'Esc' to return to the principal menu).

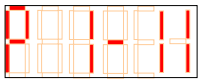
If you want to desactivate the password, you just have to parameterise the code '0000' again as access code.

■ PROCEDURE TO GET THE VERSION NUMBER OF THE ELECTRONIC CARD

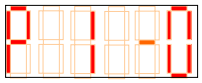
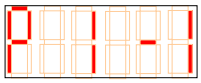
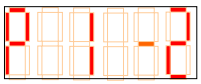
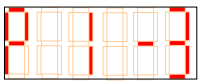
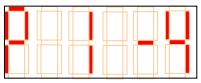
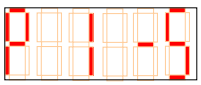
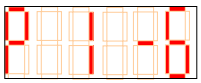
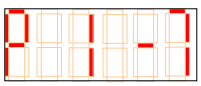
- Install the magnet on the **OK** key,
- Start the machine.

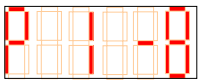
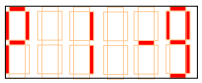
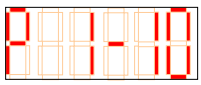
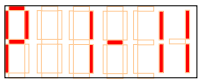
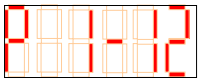
■ PARAMETERS FOR MACHINE WITHOUT CATALYST FLUSHING

Parameters	Description	Factory adjustment For the 3 programs	Your adjustment Program 1	Your adjustment Program 2	Your adjustment Program 3
	Parameter of the password	0000			
	Mixing ratio parameter. Percentage of catalyst in the base, from 0% to 160%	50 %			
	Parameters of the mixed fluid life time Minimum value : 1min Maximum value : 480 min	100 min			
	Regeneration volume parameter in cubic centimetre Minimum value : 100 c.c Maximum value : 10 000 c.c	5000 c.c			
	Flushing volume during which the machine flushes with solvent Minimum value : 10 c.c Maximum value : 10 000 c.c	500 c.c			
	Mixing tolerance parameter to enable the machine to make an alarm. Minimum value : 1% Maximum value : 100%	5 %			
	Parameter of the fluid dry extract to count the VOC Minimum value : 0% Maximum value : 100%	55 %			
	Parameter of volume by tooth of base flowmeter. You must change that parameter when changing the flowmeter. Minimum value : 0.01 c.c Maximum value : 2.00 c.c	0.24 c.c (Value of origin)			
	Parameter of volume by tooth of catalyst flowmeter. You must change that parameter when changing the flowmeter. Minimum value : 0.01 c.c Maximum value : 2.00 c.c	0.24 c.c (Value of origin)			
	Parameter of time between the air opening and the fluid opening before fault Minmum value : 1 s Maximum value : 6 s	6 s (Value of origin)			
	Parameter of the proportioning test ↵ : to activate this parameter	-			

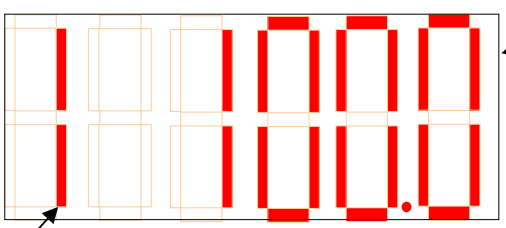
Parameters	Description	Factory adjustment For the 3 programs	Your adjustment Program 1	Your adjustment Program 2	Your adjustment Program 3
	Handling of the error 6 in the operating of the machine during the production sequence (parameter available for machine with serial number > 14 V 1152). Minimum value : 0 pulse Maximum value : 5000 pulses	100 pulses (Value of origin)			

■ **PARAMETERS FOR MACHINE <u>WITH</u> CATALYST FLUSHING**

Parameters	Description	Factory adjustment For the 3 programs	Your adjustment Program 1	Your adjustment Program 2	Your adjustment Program 3
	Parameter of the password	0000			
	Mixing ratio parameter. Percentage of catalyst in the base, from 0% to 160%	50%			
	Parameters of the mixed fluid life time Minimum value : 1min Maximum value : 480 min	100 min			
	Regeneration volume parameter in cubic centimetre Minimum value : 100 c.c Maximum value : 10 000 c.c	5000 c.c			
	**BASE** flushing volume during which the machine flushes with solvent Minimum value : 10 c.c Maximum value : 10 000 c.c	500 c.c			
	**CATA** flushing volume during which the machine flushes with solvent Minimum value : 10 c.c Maximum value : 10 000 c.c	500 c.c			
	Mixing tolerance parameter to enable the machine to make an alarm. Minimum value : 1% Maximum value : 100%	5 %			
	Parameter of the fluid dry extract to count the VOC Minimum value : 0% Maximum value : 100%	55 %			

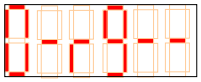
Parameters	Description	Factory adjustment For the 3 programs	Your adjustment Program 1	Your adjustment Program 2	Your adjustment Program 3
	Parameter of volume by tooth of base flowmeter. You must change that parameter when changing the flowmeter. Minimum value : 0.01 c.c Maximum value : 2.00 c.c	0.24 c.c (Value of origin)			
	Parameter of volume by tooth of catalyst flowmeter. You must change that parameter when changing the flowmeter. Minimum value : 0.01 c.c Maximum value : 2.00 c.c	0.24 c.c (Value of origin)			
	Parameter of time between the air opening and the fluid opening before fault Minimum value : 1 s Maximum value : 10 s	6 s (Value of origin)			
	Parameter of the proportioning test ↵ : to activate this parameter	-			
	Handling of the error 6 in the operating of the machine during the production sequence (parameter available for machine with serial number > 14 V 1152). Minimum value : 0 pulse Maximum value : 5000 pulses	100 pulses (Value of origin)			

10. PRODUCTION (F1)



If the machine is not in mixed material, a regeneration is automatically carried out to bring the mixed material to the gun.

We advice you to shut off air during that stage.

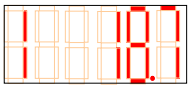
When passing for the first time to production, the machine carries out a regeneration : 

The display unit consists of a countdown that enables to know, in percentage (9 → between 90% and 100% of the volume), the pending volume flow according to the P3 parameter. At the end of that stage, the machine enters in production. You can also activate ESC during the fluid priming; we advice you not to start painting immediately.

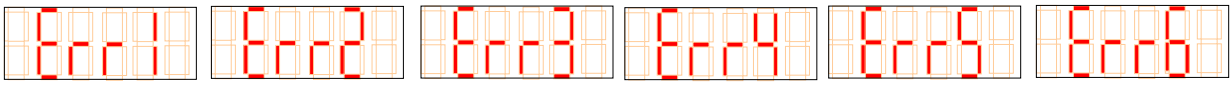
In production, as well as in regeneration, the machine injects little volumes of catalyst in a base constant flow. At the end of each injection, the machine checks the mixing and re-adjusts the volumes of injections considering the mixing difference.

In production, there are 3 main cases :

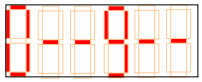
- the operator is spraying and the Cyclomix operates correctly. The real mixing ratio is displayed on the screen.



- the machine stops because of a dysfunction. The kind of breakdown is displayed on the screen, the machine emits a sound signal to inform the operator la machine (cf § "TROUBLESHOOTINGS") .

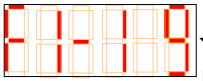


- The machine has reached the maximum life duration of the material and passes automatically in regeneration mode. The machine emits a sound signal to inform the operator. The following screen is displayed :



Open the gun until the regeneration ends.

You can stop the regeneration activating ESC. Then, the regeneration stops, but careful, the quality of the product can be inferior.

To exit from production : activate ESC. The following screen is displayed : 

Potlife (9-0)

In the 3 shades' version, during the color change, the potlife is updated with the new parameters of the selected color. If you validate another color, the potlife in progress with the old color will remain until a flushing or a regeneration is carried out.

■ PROPORTIONING TEST

To carry out a mixing test, decrease a lot the pressure of the fluids (maximum 18 bar / 261 psi) to provide any projection of dangerous material. We advice you to wear protective glasses and gloves.

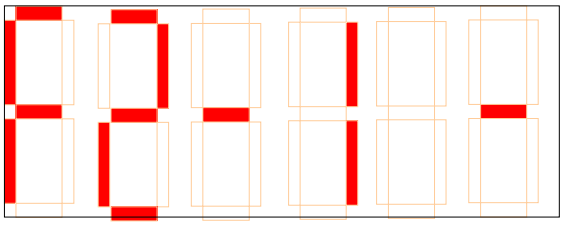
1. Turn the three way-valve to the TA index.
2. Remove the static mixer to install, instead of it, the adapter fitting (marked TB, F 3/4 JIC - F 1/4 G).
3. Place 2 beakers under the fluid outlets : TA and at the outlet of the TB mixer block.
4. Go in the menu F3 an then access to the parameter 10 (without catalyst flushing) or parameter 11 (with catalyst flushing) to activate the proportioning test.
5. When you have a sufficient sample volume, activate ESC.

Note : During the proportioning test, the error 6 is desactivated. The other errors are active only if the flow-switch is activated. We advice you to keep the error 6 active (P11 / P12 >0).

After that operation, you must carry out a flushing to clean the 3 way-valve. During the flushing, flush correctly the TA side of the valve, then turn the 3 way-valve to IN to flush the fitting at the outlet of the injector.

Once the test ended and the flushing carried out, install the mixer and leave the 3 way-valve on IN.

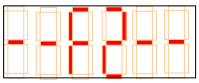
11. FLUSHING (F2)



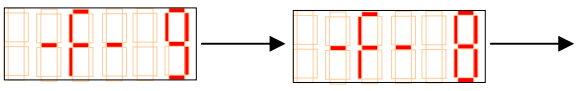
The menu is useful for the flushing. When you want to flush the machine, activate ↵ when you are on the F-2 menu.

<u>For the machine without CATA flushing :</u>

The machine asks for a confirmation to start flushing :



After confirming via ↵, the machine opens the solvent valve, starts the counting of the volume and the buzzer sounds continuously. When you begin the flow, the buzzer sounds intermittently and a breakdown begins on the display unit :



When the breakdown has reached 0, the machine closes the solvent valve and the BASE flushing has ended.

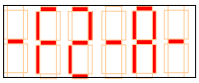
For a long duration shutdown without CATA flushing, flush the catalyst circuit :

You must disconnect the CATA hose and connect, instead of it, the SOLVENT hose (CATA). Pilot with air the VP6 valve until the solvent flows clean.

For the machine wth CATA flushing :

That mode is only available for the CYCLOMIX™ MICRO+ and CYCLOMIX™ MICRO+ PH versions. A J7 shunt inside the electric box is also necessary - (refer to"Annexes" - electric diagram, folio 2).

The machine suggests a BASE flushing :



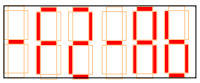
Choose :

- to confirm via ↵ :

  ⇒ the machine opens the solvent valve, starts the counting of the BASE FLUSHING volume and the buzzer sounds continuously.

- Or to select the CATA FLUSHING (BASE side flushing, then CATA side flushing), via the ▲ or ▼ keys.

⇒ The machine suggests the CATA flushing :

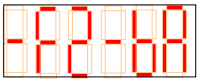


Confirm via ↵ :

⇒ the machine opens the BASE solvent valve, starts the counting of the BASE FLUSHING volume then opens the CATA solvent valve, starts the counting of the CATA FLUSHING volume and the buzzer sounds continuously.

- Or to select the CATA FLUSHING (CATA side flushing, then BASE side flushing), via the ▲ or ▼ keys.

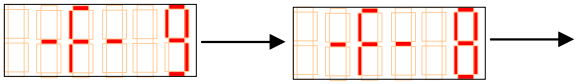
  ⇒ The machine suggests the CATA flushing :



  Confirm via ↵ :

  ⇒ the machine opens the CATA solvent valve, starts the counting of the CATA FLUSHING volume, then opens the BASE solvent valve, starts the counting of the BASE FLUSHING volume and the buzzer sounds continuously.

When you begin to flow, the buzzer sounds intermittently and a breakdown begins on the display unit.



The breakdown display evokes the kind of flushing in progress :

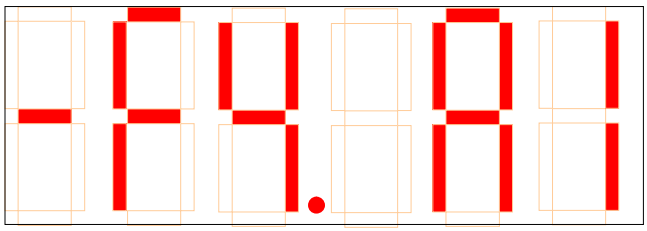
BASE : -F-A 9 or **BASE + CATA : -F-Ab9** or **CATA + BASE : -F-bA9**

When the breakdown has reached 0, the machine closes the solvent valve and the flushing has ended.

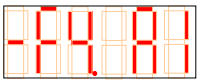
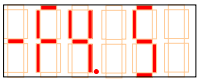
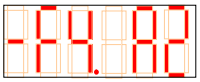
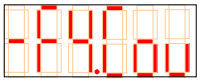
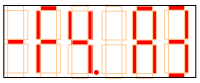
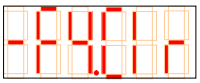
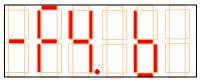
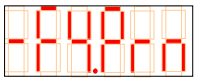
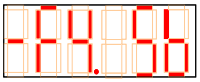
You can stop flushing activating ESC but if so, the machine can be incorrectly flushed.

The volume of flushing with solvent starts when the flowmeter begins counting. It means that the time between the validation of the flushing and the opening of the gun is not taken into account.

12. CONSUMPTIONS / PRINT (F4)



The 'F-4' menu enables to view the consumptions of each material (color, catalyst, solvent, VOC in c.c.). You can also print the ratio of the consumptions as well as the parameters of the applications but, you must equip yourself with the 'print' option. The option consists of a connection cable with connectors to connect the printer (RS 232 connection) (printer not provided with the option).

	Consumption of the color 1		Consumption of the flushing solvent
	Consumption of the color 2 (for a 3 shades' machine)		Consumption of the VOC
	Consumption of the color 3 (for a 3 shades' machine)		Reset of the consumptions activating the key ↵
	Consumption of the catalyst		Enables to print the consumptions and the parameters activating the key ↵
	Consumption of the CATA solvent (depending upon version of the machine)		

13. DOWNLOADING DATA FROM CYCLOMIX MICRO TO A COMPUTER

Nota : The following procedure has some screenshots with the PU 3000 quote . The procedure is the same for the Cyclomix™ Micro.

Preamble / "Hyper Terminal" issue

This application is necessary. Two cases are to be considered :

.PC under Windows XP/Vista/2000,

.PC under Windows 7.

- **With Windows XP/Vista/2000**, "HyperTerminal" application is available with the following path :

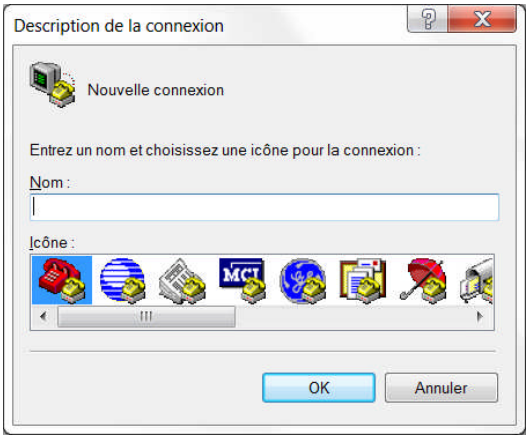
  Menu Start > All programs > Accessories > Communications > HyperTerminal

- **With Windows7**, you will need to download freeware "HyperTerminal" from some website.

  For example : http://www.01net.com/telecharger/windows/Bureautique/telephonie/fiches/5829.html

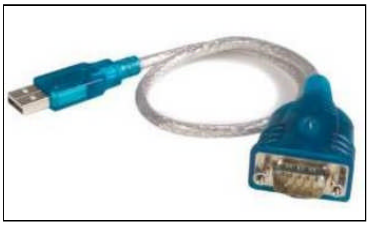
  Once it is downloaded and installed, carry out a simple test of opening and closing.

  It should look like this whenever open :



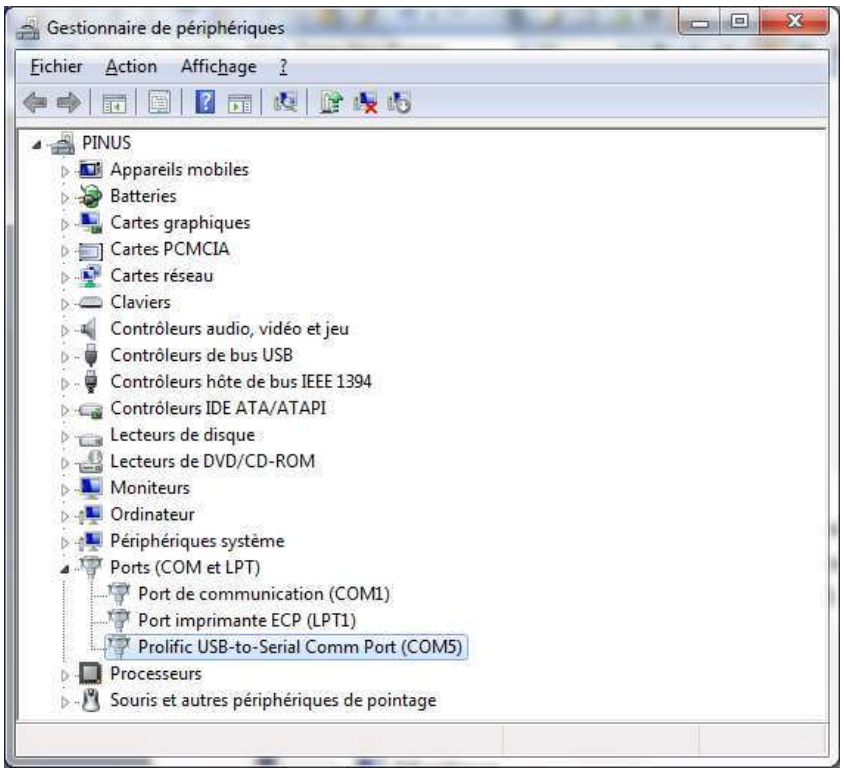
Switching of the control box

- Switch the control box.
- Link a "RS232 male / USB male" cable to the plug located below the Micro back frame, the other end to the USB plugs on the computer. Cable not supplied by KR.

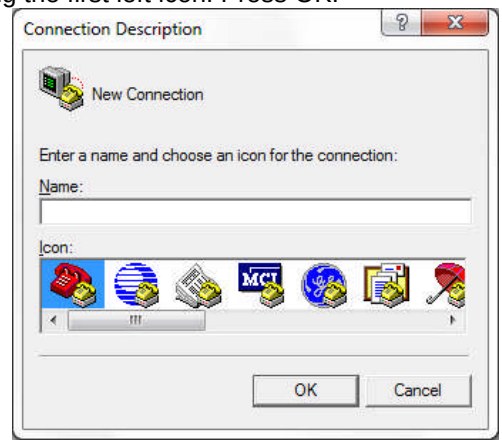


- According to the USB plug used a "port com" number appears in the "device manager" screen (Menu Start > Control panel > Device manager).

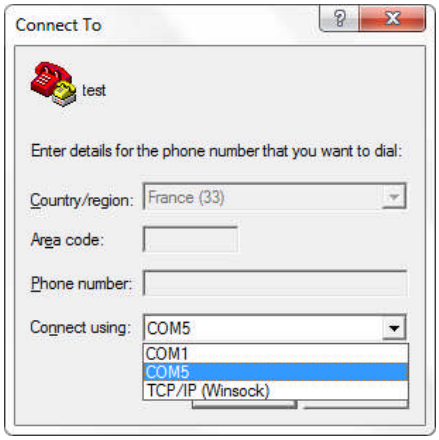
- After deployment of the "Ports" line, one of them indicates the cable pilot name ("Prolific USB" for example or else), followed by the "port com" number (COM5 in that display).



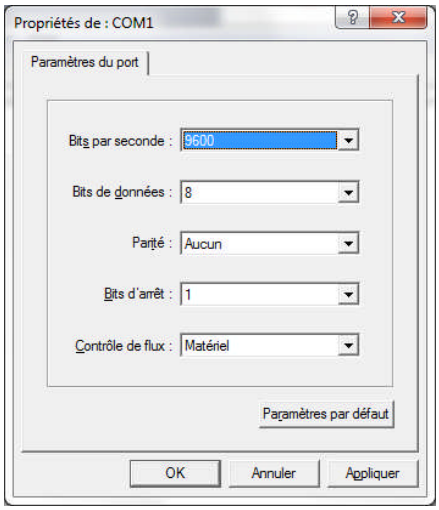
- Open "HyperTerminal" window.
- At the first connection, create a new connecting session, write a name in (order number or paint reference) by choosing the first left icon. Press OK.



- This screen appears. Select the "port com" number previously noted during your connection. Press OK.

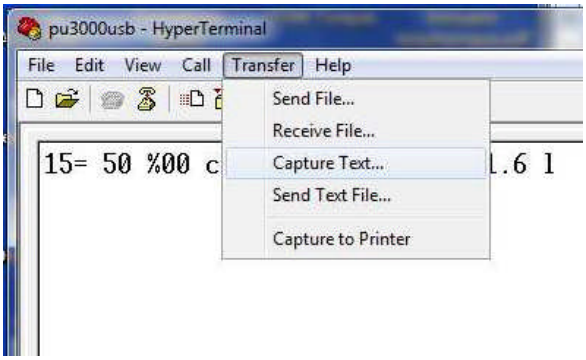


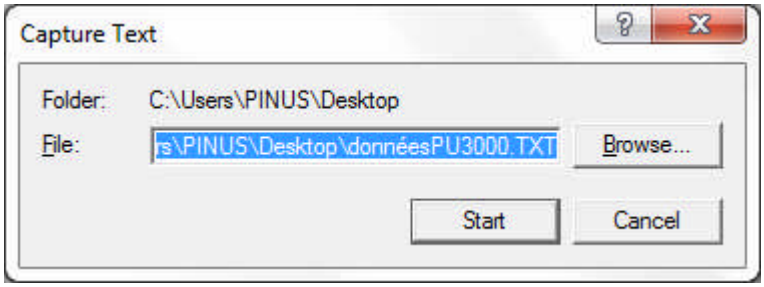
- That new screen will appears. Select band rate 9600 bits/s. Press OK.



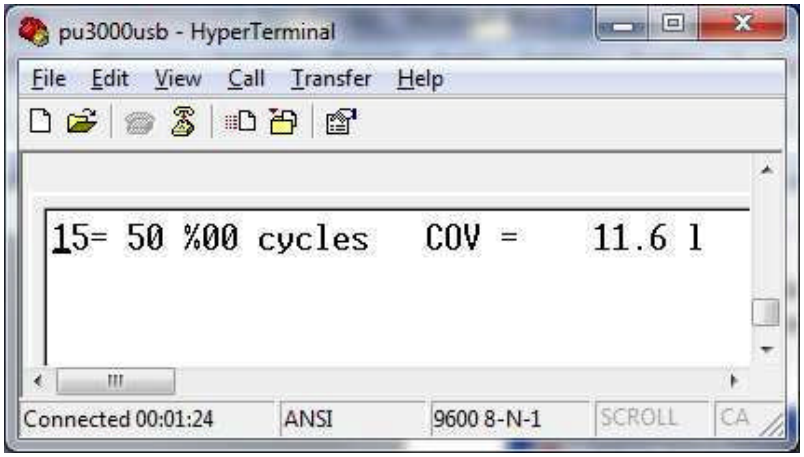
- A connection stopwatch gets activated. Leave the "Hyper Terminal" window open.
- If a session has already been created, opening the existing file is possible by going directly through the,  of the "HyperTerminal" menu, and by choosing it within the list of the *.ht files. (ex : PU3000usb).

- Create a .txt file through "transfer" (transfer > capture text), choose some file name as target (ex : dataPU3000.txt), with a location within the PC disk, and press "START" (the empty file is created / leave the HyperTerminal window always open) :

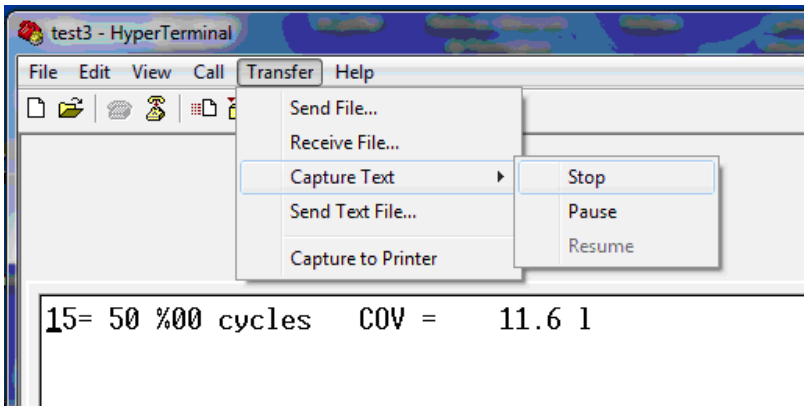




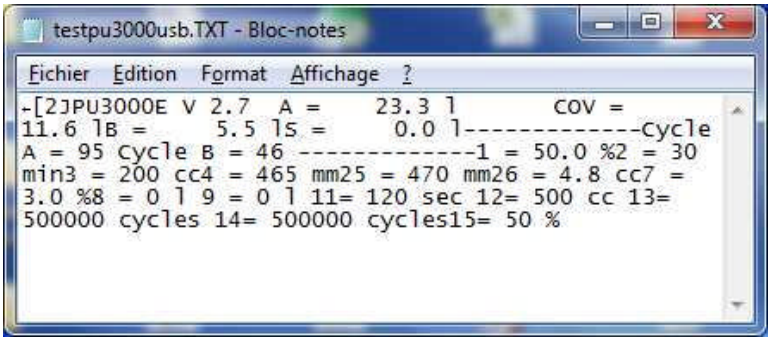
- Launch the data transfer from the control box (menu "F4. Prn" + OK), the data do appear (partially) in the display zone.



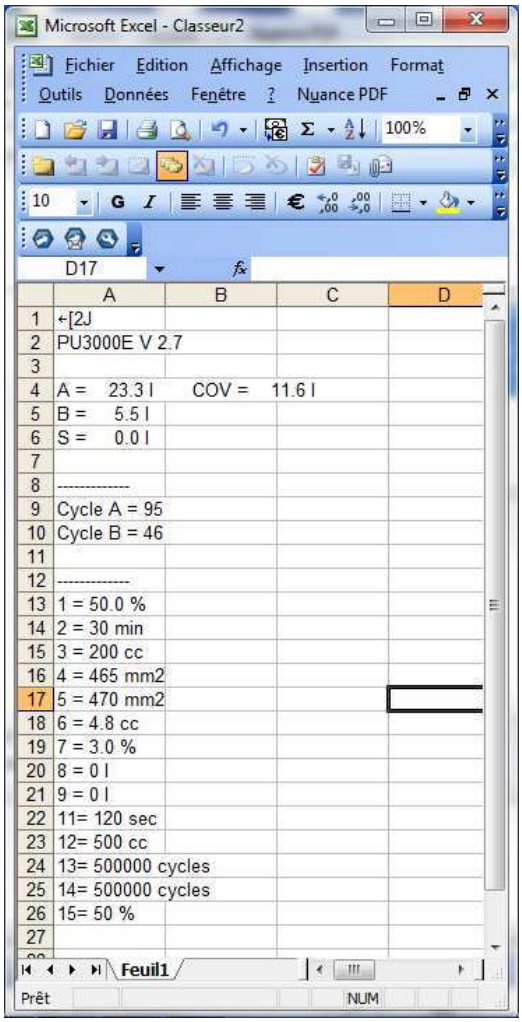
- Get back in the "transfer" menu (transfer > capture text) and press "Stop" :



- Data then become available when opening the previous created .txt file.



- From these displayed elements .txt (difficult to read up), make a simple "copy/paste" in an Excel file and data will appear as per that screen :



14. INDICATIONS GIVEN BY THE LEDS

Description	Function	Action
Red LED	Fault	The machine stops.
Orange LED	Working	Function other than production (flushing, pot-life alarm …)
Green LED	Production	
Green + orange LED	Waiting	
LED switched off	Programming	

15. MAINTENANCE

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

Never leave the mixed material in the machine. Properly adjust the pot life parameter to avoid hardening. Carry out a flushing when the work is over.

Flush when ending the work.

The life duration of the different elements depends on the features of the material used. The following maintenance plan is for information only and could not be taken into account when making a complaint.

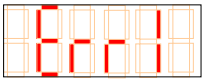
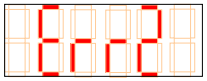
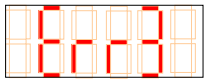
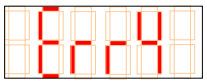
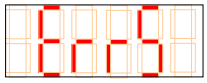
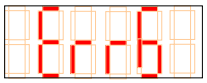
SUBSET	ELEMENT	OPERATION TO CARRY OUT	TIME EXPECTED	PERIODICITY	MACHINE STATE	TOOLS	SPARE PARTS P.N°	
Mixer	Mixer	Remove and install a new mixer	2 mn	1 year	stop		Mixer	155.660.080
Meter	Flowmeter	Remove and clean	5 mn	2 months	stop	Appropriate cleaning solvent		
		Remove and install a new flowmeter	5 mn	1 year	stop		Flowmeter	055.660.001
Piloted valve	Piloted valve	Remove and change the cartridge	10 mn	1 year	stop		Cartridge	155.535.140
		Change the piston packing	10 mn	1 year	stop		Piston packing	029.711.302
Color changer	Piloted valve	Remove and change the cartridge	10 mn	1 year	stop		Cartridge	155.535.140
		Change the piston packing	10 mn	1 year	stop		Piston packing	029.711.302
option AIRMIX® filter	Filter	Remove and clean the filter screen	5 mn	1 month	stop	Appropriate cleaning solvent	Screen # 6 Seal	129.609.908 (pack of 5) 129.529.918
		Remove and install a new filter	2 mn	6 months	stop		Complete AIRMIX® filter	155.010.100

■ TROUBLESHOOTING

For any intervention on the machine :
- Flush the circuits,
- Shut off the compressed air,
- Depressurize the hoses by triggering the gun,
- Shut off the electric supply.

If a problem occurs during the operating of the machine, some alarm will be displayed on the screen of the machine.

Enter ↵ to acquit each alarm (we advice you to keep active the error 6 even if you can can desactivate it).

TROUBLES	CAUSES	SOLUTIONS
	BASE flowmeter blocked.	Check the fluid circuit (pump, valve). Clean or change. Check or install a filter upstream the flowmeter.
	CATA flowmeter blocked.	Check the fluid circuit (pump, valve). Clean or change. Check or install a filter upstream the flowmeter.
	Incorrect mixing ratio Flow improperly adjusted	Check the pressure differential : the CATA pressure must be higher than the BASE pressure of 15%
	Time between air opening and fluid opening upper than 6 s Flow switch blocked Air leak	Trigger the gun quickler. Change the flow switch.
	VP6 valve leaking	Remove VP6 and check the correct operating. Change the valve if necessary.
 ***(Caution: this error appears only in F1 mode (production) and except the priming /regeneration stage)***	There is no signal from the flow-switch whereas there are impulses on the base flowmeter or on the catalyst flowmeter.	Check the good operation of the flow-switch. Change it if necessary. Control the good operation of the electronic card. Increase the value of P12.

■ DIAGNOSTICS

ELECTRIC

FAULTS	CHECKING
The machine does not switch on	Check that the isolating switch is on 'I'.
	Check that the mains supply is connected. **No** : connect it.
	Check that the fuse on the electric card inside the box is in working order. **No** : change the fuse (ind. 3).
	Check the electric wiring of the supply cable (bad contact or other).
You can choose the color (when using a 3 colors' machine)	Check the connection of the J7 shunt inside of the electric box (refer to Annexes).

FLUID

FAULTS	CHECKING
No fluid flows when passing into production or flushing mode.	Check if the valves are open : **No** : - Check air supply (minimum 4 bar / 58 psi), - Check the connection of the 25 pts cable - Check the correct operating of theelectrovalves. **Yes** : - Check the fluid pressure - Check the static mixer.
In production : there is only catalyst and the injection valve opens but does not close. Moreover, the Cyclomix™ Micro™ does not indicate faults.	Check the flow switch and the CATALYST flowmeter.
In production : the base only flows and the injection valve does not open.	Check the flow switch & the BASE flowmeter.
The machine displays the correct mixing but the consumption of catalyst is too important.	Check the non-return valve of the BASE . Check the grounds of the machine (230V intake and ground cable of the fluid module)
The machine displays the correct mixing but the consumption of catalyst is not enough.	Check the grounds of the machine.
When the main menu page is displayed, fluid flows out when the gun is open	Check the valves Checking of the valve : look at what is flowing : if it is solvent, change the valve (Vp 1), if it is base, change the valve (Vp 2), if it is catalyst, change the valve (Vp 6).
In production : the fluid flows from the TA test outlet	Change the 3 way-valve.

FAULTS	CHECKING
One of the meters does not count	If the machine indicates that the BASE flowmeter is blocked and that the fault is recurrent : - Clean the mobile parts of the flowmeter (gearing and bearings), - Check the sensor assembly, - Check the electric wiring of the sensor.
	If the machine indicates that the CATALYST flowmeter is blocked and that the fault is recurrent : - Clean the mobile parts of the flowmeter (gearing and bearings), - Check the sensor assembly, - Check the electric wiring of the sensor, - Check the VP6 valve, - Check the piloting electrovalve of the VP6 valve, - Check if there is a clogging of the injector.

AUTO-WASH

You cannot switch to production with the auto-wash : it only can be used as a support.

16. DISASSEMBLY - REASSEMBLY

Stop the machine after its flushing.

Depressurize the systems.

The machine is manufactured under the ATEX agreement and can not be modified. KREMLIN REXSON will not be held responsible for any failure to comply with that instruction.

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

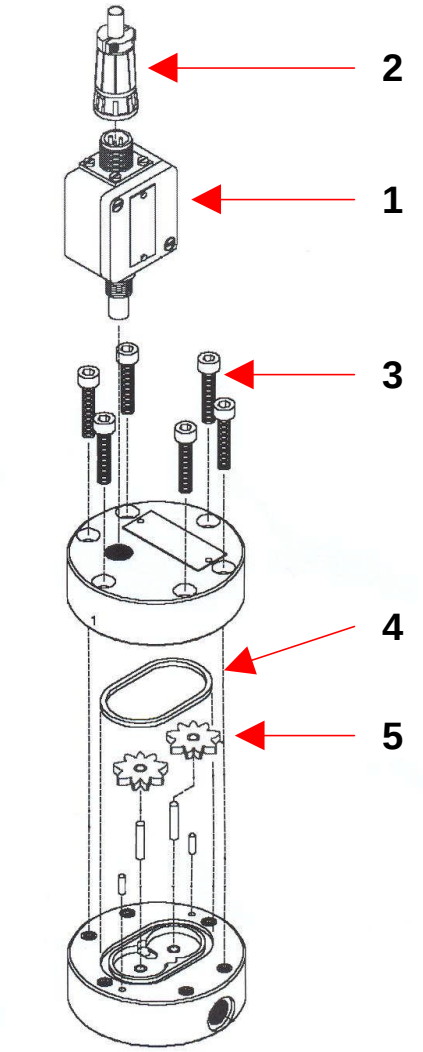
■ MIXER

Unscrew the mixer assembly and replace it with a new one.

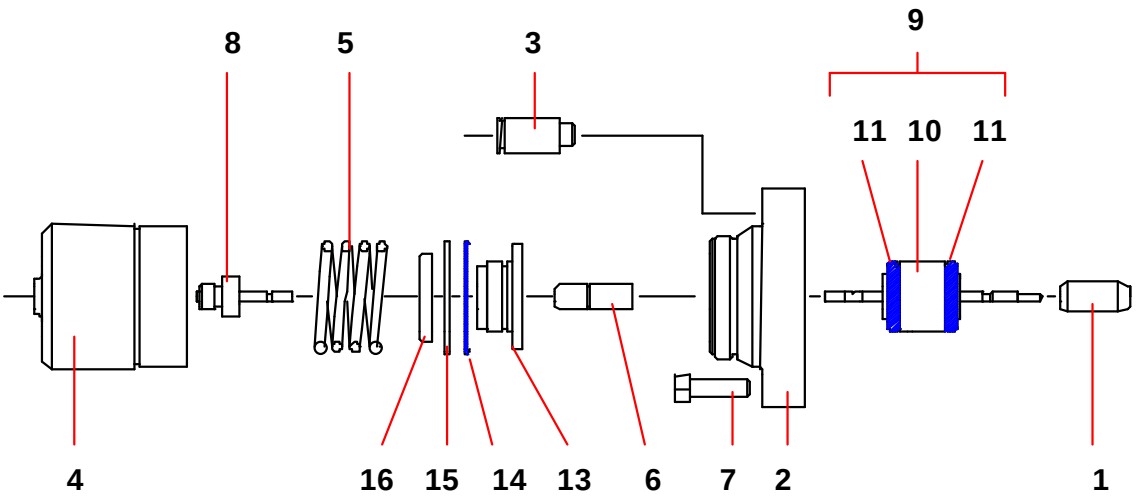
■ FLOWMETER

The flowmeters consist of an electronic sensor (1) and of a mechanical part that is composed of bearings and gearings.

To remove the flowmeter : disconnect the connector (2) and unscrew the sensor (1). Then loosen the screws (3) of the mechanic part. Once the screws removed, open the flowmeter paying attention to the seal (4) and to the gearings (5). Clean the different elements then reinstall.



■ PILOTED VALVES (FLUID VALVES AND TEST VALVES)



CARTRIDGE OF A FLUID VALVE (Ind. 9)

Loosen the 3 screws (7) and take off the valve from the module body.

Unscrew the needle (1).

Unscrew the cylinder (4).

Hold the rod strainer (6), unscrew the needle rod and remove the cartridge assembly with rod (9).

Assemble the new cartridge (9) into the cylinder support (2) pushing it until the shoulder of the cartridge rests on the shoulder of that support, then reassemble all parts of the valve in reverse order of the disassembly.

Present the valve in fronf of the module body.

Center the cartridge (9) on the module body then reassemble the screws (7).

PISTON PACKING (Ind. 14)

Unscrew the cylinder (4).

Remove the spring (5).

Unscrew the opening signal light (8).

Unscrew the nut (16).

Remove the support washer (15) and the packing (14).

Clean the parts and change them if necessary.

Before reassembling :

Before assembling on the piston (13), take care of shaping the cartridge lip (14) by hand as shown in the above drawing (cartridge turned up on the piston).

The nut (16) must be glued on the piston (13) with loctite adhesive (eg : Loctite 222).