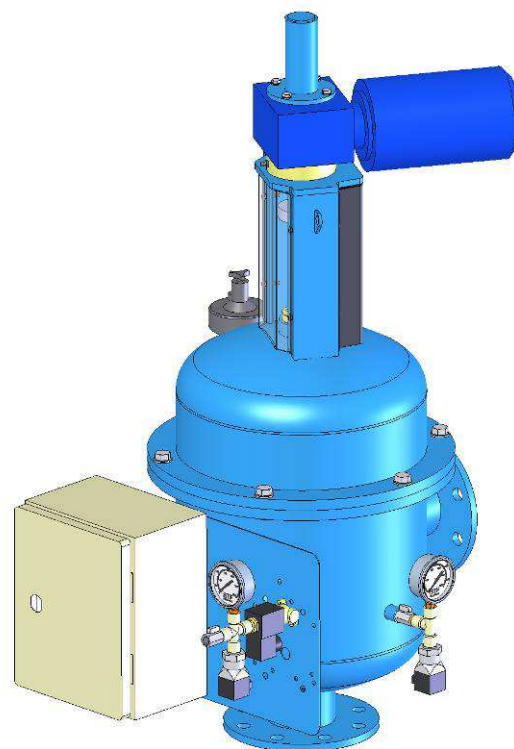


# FMA – 1000E

## INSTALLATION, OPERATION AND MAINTENANCE MANUAL



## TABLE OF CONTENTS

1. – INTRODUCTION .....	6
2. – WARRANTY .....	7
3. – SAFETY .....	8
4. – FMA-1000E FILTER DESCRIPTION .....	10
5. – FMA-1000E PERFORMANCE .....	11
6. – TECHNICAL CHARACTERISTICS .....	12
7. – IDENTIFICATION PLATE .....	15
8. – IINSTALLATION INSTRUCTIONS.....	16
9. – STARTING INSTRUCTIONS.....	17
10. – MAINTENANCE INSTRUCTIONS.....	19
11. – PREVENTIVE MAINTENANCE SCHEDULE.....	20
12. – CONTROL PANEL.....	21
12.1. – CONNECTION .....	23
12.2. – PERFORMANCE.....	25
12.3. –MODIFYING PARAMETERS.....	26
13. – WARNINGS AND ALARMS .....	29
14. – ELECTRIC LAYOUT .....	30
15. – HYDRAULIC CIRCUIT.....	32
16. – EXPLOSION DRAWING.....	34
17. – ERROR DETECTION .....	40

**IMPORTANT WARNINGS**

READ CAREFULLY AND FOLLOW THE DEVICE MANUAL INSTRUCTIONS. THE MANUFACTURER IS NOT RESPONSIBLE FOR THE DAMAGES OCCURRED OR THE NEGLIGENCES HAPPENED AS A RESULT OF NOT READING THE MANUAL

This device has been manufactured in such a way that its performance does not bring about any risks for the designed usage, provided that:

Both the installation and the management, as well as the maintenance have to be carried out according to the manual instructions.

The facilities conditions and the supply voltage have to follow the specified instructions.

Any different usage from this will be incorrect, as well as the non authorized modifications made by the manufacturer. The damages occurred because of an incorrect usage will be the user responsibility that will automatically determine the warranty cancellation.

Remember that the device will contain electric components with voltage, and therefore, all the service operations or maintenance will be performed by qualified and skilled personnel, aware of the necessary precautions. Before having acces to the interior parts, the electric supply has to be dismantled.

**READ AND KEEP THESE INSTRUCTIONS**

*We really want you to save time and money!  
We assure that this entire manual reading will guarantee the correct installation and a safe product usage.*

**BEWARE!**



ELECTRICAL DISCHARGE RISK. THE OPERATIONS INDICATED WITH THIS SYMBOL WILL HAVE TO BE PERFORMED ONLY BY SKILLED TECHNICAL

**BEWARE!**



ESSENTIAL INFORMATION AND ASPECTS.  
HAVE THE DEVICE DOCUMENTATION AS A REFERENCE.

**NOTE**



REALLY IMPORTANT INFORMATION AND ASPECTS

	<b>SISTEMAS DE FILTRADO Y TRATAMIENTO DE FLUIDOS, S.A.</b> Polígono La Armentera, parcela 87 22400 Monzón (Huesca) ESPAÑA/Spain
	Tel: (+34) 974 40 19 33 / Fax: (+34) 974 41 78 09 <a href="mailto:info@stf-filtros.com">info@stf-filtros.com</a> / <a href="http://www.stf-filtros.com">www.stf-filtros.com</a>

**Declaración de Conformidad**   
 (Conforme a las Directivas Europeas 2006/42/CE sobre Máquinas-Anexo IIA,  
 Directiva 97/23/CE sobre Equipos a Presión y Directiva 2006/95/CE sobre Material Eléctrico)

**EC Declaration of Conformity**

(As defined by “Machinery Directive 2006/42/EC, Appendix IIA”,  
 “Pressure Equipment Directive (PED) 97/23/EC” and “Electrical Equipment Directive 2006/95/EC”)

Por el presente documento declaramos que los productos especificados a continuación cumplen los requisitos básicos de seguridad y salud conformes a las siguientes directivas que le son de aplicación:

*We hereby declare, that the products specified below meet the basic health and safety requirements of the above mentioned European Directives.*

**DIRECTIVA SOBRE MÁQUINAS 2006/42/CE** / (Machinery Directive 2006/42/EC, Appendix IIA)

<b>DESCRIPCIÓN DE LA MÁQUINA:</b> <i>Machine description:</i>	<b>FILTRO DE MALLA AUTOLIMPIANTE ELÉCTRICO</b> <i>ELECTRIC SELF-CLEANING SCREEN FILTER</i>
<b>FUNCIÓN:</b> <i>Function:</i>	<b>RETENCIÓN DE SÓLIDOS EN SUSPENSIÓN</b> <i>SUSPENDED SOLID RETENTION</i>
<b>MODELO / TIPO:</b> <i>Model / Type:</i>	
<b>NÚMERO DE SERIE:</b> <i>Serial Number:</i>	
<b>LA MÁQUINA SE ENCUENTRA EN ANEXO IV?</b> <i>Is the machine included in Appendix IV?</i>	NO

**DIRECTIVA SOBRE EQUIPOS A PRESIÓN 97/23/CE** / (“Pressure Equipment” Directive 97/23/CE)

Con arreglo al Apartado 3.9 del Artículo 1, de la Directiva 97/23/CE, los equipos que correspondan a lo sumo a la Categoría I, quedan excluidos de los requisitos de la presente Directiva.

*Based on Section 3.9 of Article 1, of this directive, the pressure equipment classified as no higher than category I, are excluded from the scope of this Directive.*

<b>DESCRIPCIÓN DEL EQUIPO:</b> <i>Equipment description:</i>	<b>FILTRO DE MALLA AUTOLIMPIANTE</b> <i>SELF-CLEANING SCREEN FILTER</i>
<b>PRESIÓN DE DISEÑO / TEMPERATURA DISEÑO</b> <i>Design Pressure / Design Temperature</i>	PN / °C
<b>FLUIDO A CONTENER/ GRUPO S. D 67/548/CEE</b> <i>Fluid / Fluid group S/D. 67/548/CEE :</i>	AGUA / GRUPO 2 <i>WATER / GROUP 2</i>
<b>CATEGORÍA DEL EQUIPO / MÓDULO</b> <i>S/D.9-/2-EC category / Module</i>	NO APLICA (APARTADO 3 ARTICULO 3) <i>NOT APPLICABLE (SECTION 3, ARTICLE 3)</i>

**DIRECTIVA SOBRE MATERIAL ELÉCTRICO DESTINADO A UTILIZARSE CON DETERMINADOS LÍMITES DE TENSIÓN 2006/95/CE** / (“Directive 2006/95/EC to electrical equipment designed for use within certain voltage limits”)

El Dossier Técnico de Fabricación de estos equipos se encuentran en nuestro domicilio social arriba indicado.

*The Technical construction file is maintained at the corporate address mentioned above.*

La maquinaria, equipo, montaje o su-montaje al que se refiere esta Declaración de conformidad no debe ponerse en funcionamiento hasta que la unidad a la que se incorpore haya sido declarada de conformidad con las disposiciones de la(s) Directiva(s) que le resulte(n) aplicable(s).

*The machinery, product, assembly or sub-assembly covered by this Declaration of Conformity must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the applicable Directive(s).*

Monzón, \_\_\_\_\_ 201 \_\_\_\_\_

**D. Víctor Clarimón Rami**  
 Dirección Industrial / General Manager

## 1. – INTRODUCTION

STF – FILTROS congratulates you on the acquisition of the FMA-1000E self cleaning automatic filter.

All the products manufactured by STF-FILTROS are easy to install, use and maintain.

If you have any doubts about its performance after reading this manual, please contact the STF-Filtros Technical Department.

### CONTACT



SISTEMA DE FILTRADO Y TRATAMIENTO DE FLUIDOS S.A

☎ +34 974 401 933

☎ +34 974 417 809

✉ info@stf.filtros.com

www.stf-filtros.com

## 2. – WARRANTY



SISTEMAS DE FILTRADO Y TRATAMIENTO DE FLUIDOS S.A.U.

Pg. Armentera, 87 ● 22400 MONZON (Huesca) SPAIN  
 Tfno. (+34) 974 401 933 ● Fax (+34) 974 417 809  
[info@stf-filtros.com](mailto:info@stf-filtros.com) ● [www.stf-filtros.com](http://www.stf-filtros.com)



# WARRANTY CERTIFICATE

### TWO YEAR LIMITED WARRANTY

STF-Filtros sells this product with the understanding that the user will perform all necessary tests to determine the suitability of this product for the user's intended application, and warrants to the original purchaser that this product will be free from defects in material and workmanship for twenty four (24) months from the product delivery date. Subject to the limitations set forth below, STF-Filtros will repair, replace or refund the purchase price as paid by the CUSTOMER.

The repair, replacement or refund remedy shall be the sole and exclusive remedy provided under the "Two year limited warranty" and shall not extend beyond the twenty four (24) months period set forth herein.

#### Exclusions and Limitations

1. The "Two-year limited warranty" is void if the product has been subjected to:
  - a) Misuse, neglect or accident.
  - b) Unauthorized modification, improper installation or application.
  - c) Use in violation of our instructions for installation and maintenance.
  - d) Repair or modifications performed by non-qualified personnel
  - e) Power surges, flood, fire, accidental breakage or other events outside STF- FILTROS control.
  
2. The "Two year limited warranty" does not cover any transportation charge, customs clearance or any other costs for return of the products, for reshipment of any repaired or replaced products, or costs associated with installation, removal or reinstallation of the products.
  
3. Warranty claims will not be honoured if the type or serial number of the products of STF FILTROS have been altered, removed or made illegible.
  
4. Due to our high degree of customer loyalty, we can only grant the warranty stipulated in this certificate to our direct customers.


Model	
Serial Number	_ _ _ _ / _ _ _ _

\_\_\_\_\_ Issue date

\_\_\_\_\_ Delivery note No.

\_\_\_\_\_ Authorized signature

### 3. – SAFETY

FILTER SAFE USE INSTRUCTIONS	
	<p>THE INCORRECT USE AND MAINTENANCE OF THE EQUIPMENT MAY CAUSE PHYSICAL INJURIES.</p> <p>IT IS STRONGLY RECOMMENDED TO RESPECT THE FOLLOWING INSTRUCTIONS IN ORDER TO AVOID RISKS.</p> <p>USE ACCIDENT PREVENTION MEASURES THAT GUARANTEE YOUR SAFETY AND THE EQUIPMENT SAFETY.</p>

- **Do not touch parts in motion.**  
Never place your hands, fingers or any other body parts near the filter parts in motion.
- **Do not touch the filter without protection.**  
Never use the filter without the protections are not perfectly settled in its (e.g. protection cover). If the maintenance operations require their removal making sure that before using the new filter the protections are well fixed in its corresponding place.
- **Get protected in case of electric shocks.**  
Avoid equipment electric part accidental contacts with the metallic parts.
- **Switch off the filter.**  
Switch off the filter before performing any assistance, inspection, maintenance, backwashing, replacement or control of pieces.
- **Discharge filter pressure.**  
Remove the equipment pressure before performing any assistance, inspection maintenance, backwashing, change or control of pieces.
- **Working area.**  
Keep the working area clean and from time to time remove the unnecessary tools. The equipment may produce sparks while it is running, never use the equipment if there is polish, petrol or any other fuel or explosive material.
- **Filter maintenance.**  
Follow this manual instructions, revise the greasing, inspect the supply wire periodically, if it is damaged get it repaired by skilled personnel. Check that the external appearance has not got visual faults.
- **Check that screws, bolts and covers are firmly mixed.**  
Check that they are adjusted from time to time



- **Make the equipment to run at a nominal tension.**

Pay attention to the specified voltage in this manual and the characteristics plate in the filter.

- **Never use the filter if it is faulty.**

If the filter runs making weird noises, a lot of vibrations or it looks faulty, stop its running immediately and check its functionality.

- **Use only original spare pieces.**

The use of no original spare pieces invalidates the warranty.

- **Do not modify the filter.**

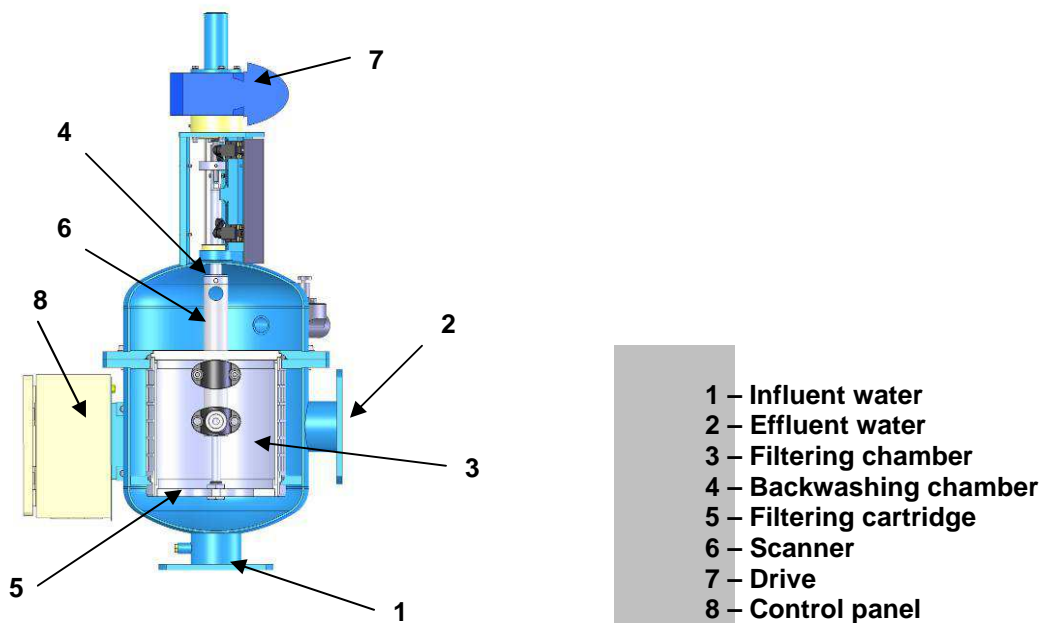
A non authorized modification can diminish the equipment performance qualities and produce harsh accidents if people have not the appropriate technical knowledge.

- **Switch off and drain off the equipment.**

When the filter is not running switch off the supply equipment and drain off the filter to get its life extended.

#### 4. –FMA-1000E FILTER DESCRIPTION

The filter consists of an external casing where there are two differentiated chambers. The former filtering chamber coincides with the influent water; and where the filtering screen is placed.



In this case water runs from the filter interior into the exterior. The solid remains in suspension (filth) held back in the filtering element, that is it, the screen. This chamber coincides with the filtered influent water inlet to the correct application. Drinking water, process water, refrigeration water, etc.

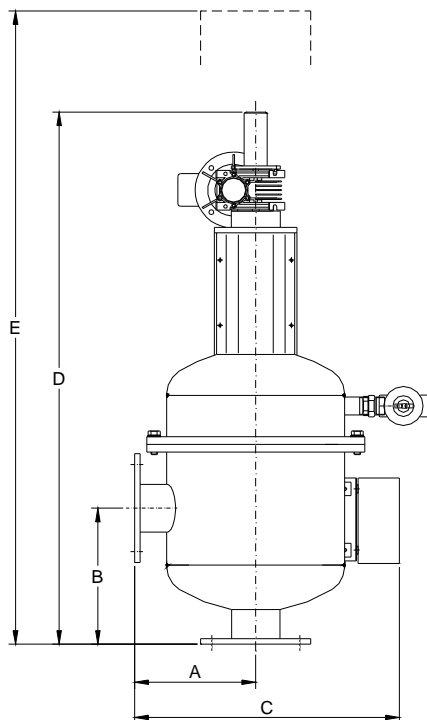
The held back dust forms a layer on the screen that diminishes its load. The filter backwashing bases on a third chamber, the backwashing chamber whose output is connected to the drainage valve that allows water evacuation when the backwashing process starts. The backwashing chamber is separated from the filtering by a special sealing.

To finish with, as a very important element of this technology is the SUCTION SCANNER. This scanner is the same place as the filtering cartridge central shaft would be, and it is hydraulically connected to the backwashing chamber. At the same time, in the filtering chamber area where it is, the SUCTION NOZZLES are displayed perpendicularly. The nylon brushes nearly reach the screen. The situation of these nozzles in the suction scanner has been studied for getting into contact with the screen internal surface, thanks to the spiral movement that the electric engine provides to the scanner: when combining a longitudinal and rotation movement.

## 5. – FMA-1000E PERFORMANCE

- Water gets into the filtering chamber, goes through from inside to outside the FILTERING SCREEN, producing the SURFACE MECHANIC. High quality water is obtained according to the filtration degree chosen for the filtration screen which can vary from 10 microns to 2000 microns.
- Dust remains on the thin screen interior what produces head loss between the filter inlet and outlet gradually. Two analogic transducers situarán the backwashing sequence when the DP becomes 0.3 (3 m.c.a). There are other possibilities to make the filter backwashing: Time backwashings, time and pressure combination, continuous backwashing option.
- When the pressure switch indicates 0.3 bar, the drain valve receive the opening order, then it generates a pressure difference between outside (atmospheric pressure) and the inside of the filter (working pressure) that is why fast running water which is produced, goes through the screen and then goes outside through the nozzles internal orifice. Besides this, at this very moment the starting order is also sent to the engine.
- The result of these actions is: the suction effect of the nozzles on the screen dust and the suction scanner spiral movement in the inside of the filter.
- During the backwashing process that lasts 25 seconds, water is still being filtered and goes on flowing to the system or application. This fact whis is is due to the filters design allows that the backwashing water consumption is MINIMUM and the working system is CONTINUOUS

## 6. – TECHNICAL CHARACTERISTICS



Model	Dimensions (mm)					Filtering surface (cm <sup>2</sup> )	
	A	B	C	D	E	PVC	Stainless steel
FMA-1002-E	220	220	500	900	1150	460	711
FMA-1003-E	220	250	500	980	1230	1000	1400
FMA-1004-E	260	320	590	1100	1340	1600	2200
FMA-1006-E	260	470	590	1375	1615	3200	4390

Filter model STF - FMA	1002-E	1003 - E	1004 - E	1006-E	
Inlet diameter/ outlet	2"	3"	4"	6"	Note A
Maximum flow m3/h	14	30	45	90	Note B
Filtration surface cm2	460	1.000	1.600	3.200	PVC
Filtration surface cm2	711	1.400	2.200	4.390	Stainles steel
Minimum working pressure	2 bar				
Maximum working pressure	10 bar				Note C
Weight Kg	40	45	60	86	
Backwashing valve	1"				
Backwashing time	4/13 seconds	16 seconds	18 seconds	15/20 seconds	
Backwashing flow m3/h	2.4	3,7	3,7	9	Note D
Flushin water volume litres	5	16,4	18,5	53	
Operation voltage	Monophase (220v 50 Hz)				Note E
Control tension	24 V DC				
Electrical engine	0,18 kW				
Electricity draw	0,72 Amp (220v/250v)				
Filter body and covers	Carbon steel S-235-JR coated with EPOXI-POLIESTER				Note F
Suction scanner	Stainless steel AISI-304				Note F
Screens	Stainless steel AISI-316				
Backwashing valves	Polypropylene				

**NOTE A:** Other diameters under request

**NOTE B:** measured at 125 microns

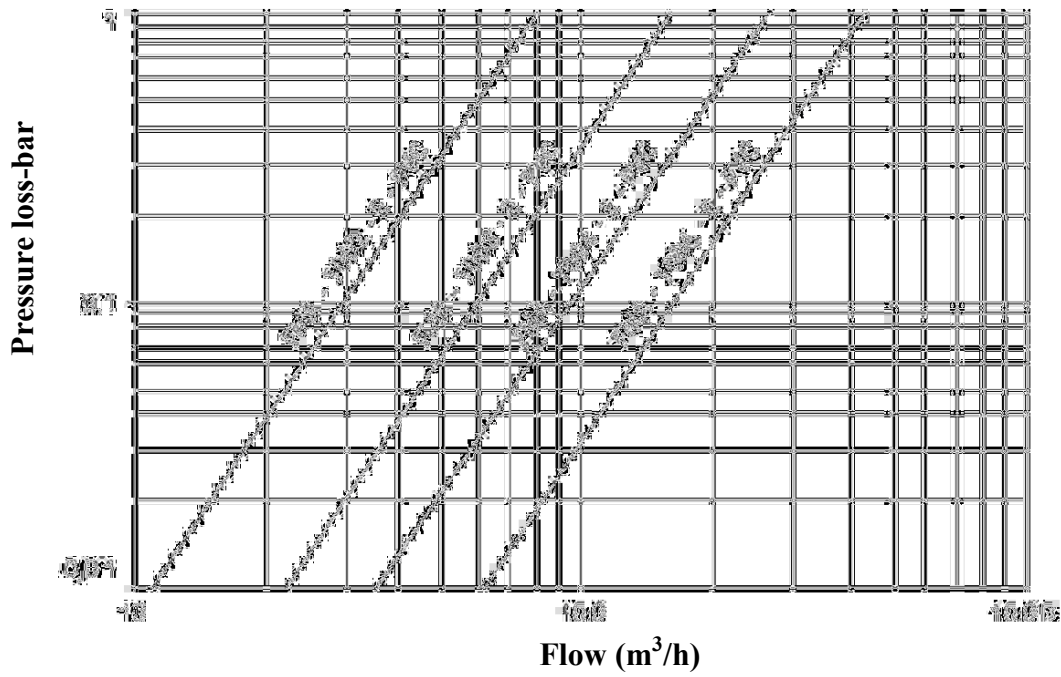
**NOTE C:** Other pressures under request

**NOTE D:** At 2 bar.

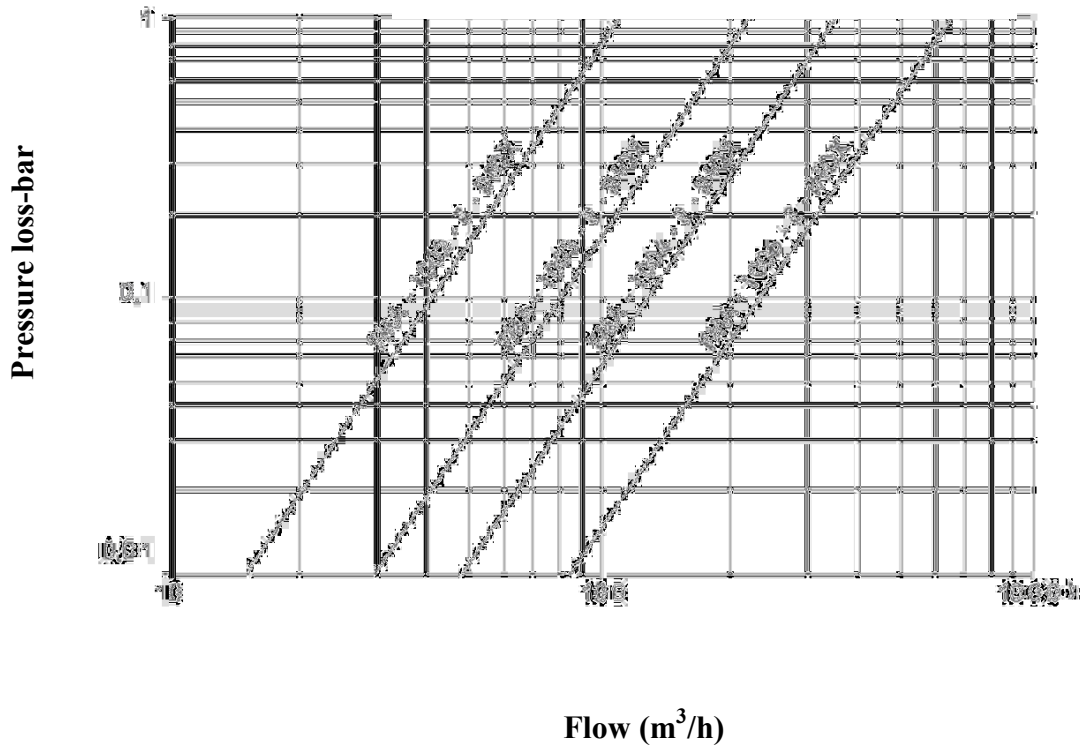
**NOTE E:** Any voltage under request.

**NOTE F:** Other materials under request

**Head loss FMA-1000-E-PVC**





**Head loss FMA-1000-E-PVC**



**NOTE:** 125 microns cartridge values. Ask the manufacturer in case of other filtration degrees.

## 7. – IDENTIFICATION PLATE

All the equipments are identified by means of an identification plate stuck to the filter.

	<b>FILTRO DE MALLA AUTOMATICO</b> <b>FMA - Serie 2000</b>							
	<b>DN</b>	3"	4"	6"	8"	10"	12"	14"
CONTROL DE CALIDAD 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	N° de FILTRO		<input type="text" value="11/xxx"/>					

The following information is included in the identification plate:

- Equipment serial.
- Model
- Equipment serial number
- CE certificate

## 8. – INSTALLATION INSTRUCTIONS

- Take precautions to prevent the filter from striking, the equipment lifting by means of the upper anchor points.
- Make sure that the installation point has the minimum operation pressure.
  - The backwashing pipe has to be measured so that it gets a minimum flow head loss.
  - In installations with a working pressure superior to 6 bar, it is advisable to install a ball valve in the backwashing pipe to adjust the backwashing flow.

### NOTE



THE MINIMUM WORKING PRESSURE IS 2 BAR BETWEEN THE FILTE  
OUTLET AND THE DRAIN VALVE.

IN CASE THE DRAIN IS RECONDUCTED, IT IS NECESSARY TO  
INCREASE THE WORKING PRESSURE IN ORDER TO COMPENSATE  
FOR THE HEAD LOSS THAT MAY APPEAR IN THE DRAIN PIPE

- Install the filter in a vertical way, make sure there is enough room to allow an easy access to the equipment for future treatments and for a sale maintenance.
- Position the filter in the driving obeying the arrows indicating the water running direction.
- Inlet and outlet shut-off valves are recommended to be installed in order to insultate it. It is recommended to install a by-pass in order to avoid power cuts during the maintenance.
- It is recommended to install an outlet backflow in order to avoid water hammer on the filter.
- According to section 12.1 the electrical wiring can only be installed by a skilled electrician.
- In the filter instalation it has to be avoided that water splashes over the electrical components or the control panel.



## 9. – STARTING INSTRUCTIONS

- Check previous section instructions.
- Check the hydraulic circuit (see section 15) that provides the backwashing valve with water, making sure that:
  - $\frac{3}{4}$ " filter is clean.
  - The ball valve is open.
  - The 3 way valve value is in AUTO position.
- Start with the following shut-off valves configuration:
  - Inlet valve: OPEN
  - Outlet valve: CLOSE
  - By – pass (if it exists): CLOSE
- Switch on the filter, put the circuit breaker ON.
- Make sure that the programmable relay is on the selected option RUN.
- Manual backwash by pressing the limp button. The backwashing cycle evolution is detailed in section 12.2.
- Open outlet valve.  
A drop in pressure and water flow increase is produced when the water mains is filled in. That is why it is advisable to install an outlet pressure valve, making sure that the water mains fillins is controlled.

### NOTE



IN CASE A SUPPORTING PRESSURE IS NOT INSTALLED, DURING THE WATER MAINS FILLING, CLOSE THE OUTLET VALVE UNTIL GETTING 2 BAR IN THE CLEAN WATER PRESSURE GAUGE. ONCE THE WATER MAINS IS PRESSURIZED, OPEN THE OUTLET VALVE TO GET A CORRECT OPERATION.

- Make sure that water flow and pressure installation correspond with the maximum values defined for this manual model. See section 6.
- Check the equipment operation and the head loss when the starting up is finished.

**NOTE**

THE FILTER CAN START THE BACKWASHING CYCLE AUTOMATICALLY WHEN THE 0.3 PRESSURE DIFFERENCE BETWEEN THE INLET AND THE OUTLET RISES OVER 0.3 BAR.

## 10. – MAINTENANCE INSTRUCTIONS

- Switch off the energy supply filter before any maintenance operation.
- Make sure that the filter is unpressurized before loosening the screws.
- Avoid splashes and water leaks by minimizing the personnel risk sliding or being electrocuted and the damage that humidity can cause to the equipment.
- After completing the treatment rearm the transmission mechanism protecting covers.
- Make the the manual backwashing of the filtering cartridge by using pressurized. If necessary acid or any other chemical products will be used. This process has to be done following the material instructions and not putting the operator or the rest of the people at risk.
- Drain the equipment when it is not used for long time.

### NOTA



OPEN AND CLOSE THE VALVES SLOWLY AND GRADUALLY


## 11. – PREVENTIVE MAINTENANCE SCHEDULE.

MANTENANCE	TIME	ELEMENT	ACTION
<b>EXTERNO</b>			
Working revision	1000 backwashing cycles	Complete filter	Filtro On + manual backwashing button  Control: <ul style="list-style-type: none"> <li>• Engine starting</li> <li>• Valve opening</li> <li>• Efective backwashing cycle (P<sub>1</sub> = P<sub>2</sub>)</li> </ul>
Anticorrosion treatment	12 months	FMA casing (element 9)	Review anticorrosion treatment in the necessary points. Apply Epoxi – Polyester treatment
Turret	6 months	Spindle (element 1.23)	Desmantle the spindle (1.14) and lateral rolling press. Clean and grease spindle both sides  Use the grease supplied by STF-Filtros.
Rim watertightness	6 months	Rim watertightness (element 1.10)	Revise the watertightness of the element 1.10. Replace the inside joints: <ul style="list-style-type: none"> <li>• Ø37x4 o-ring seal (element 1.17)</li> <li>• NI joint– 150 20x28x5,5 (element 1.16)</li> <li>• EQ-16 quadric joint (element 1.19)</li> <li>• Scraper 20X28X4,8/7 (element 1.20)</li> </ul>
Pressure line	1 week	Intake filter (element 18)	Intake filter backwashing and microtubes for supplying water to the backwashing valve.
<b>INTERNO</b>			
Anticorrosion treatment	12 months	FMA casing (element 13)	Review anticorrosion treatment in the necessary points.  Apply Epoxi – Polyester treatment
Suction nozzles	12 months	Suction nozzle (element 5.11)	Suction nozzles condition revision, nylon fibers condition, cartridge proximity.
Filtering cartridge	Inactivity period	Filtering cartridge (element 6.1)	Backwash manually by using water under pressure, if necessary, acid or any other chemical products will be used.
Joints	12 months	Inside joints <ul style="list-style-type: none"> <li>• Element 4</li> <li>• Element 5.2</li> <li>• Element 7</li> </ul>	Revise inside joints. In case they are deteriorated, they will be replaced.

## 12. – CONTROL PANEL

When a FMA-1000E filter model is supplied, all the electrical connections between the control panel and the checked by the manufacturer.

The equipment supply is 230V CA, 50Hz in a standard way. In case of variant, this should be checked by the manufacturer.

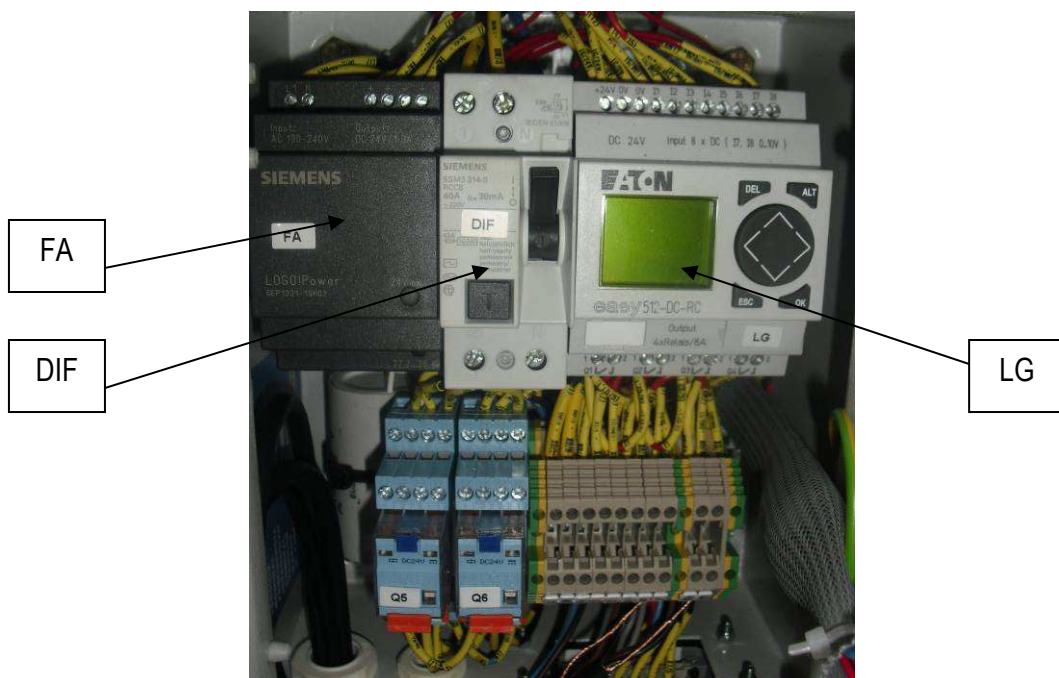
<b>BEWARE!</b>	
	<p>DURING THE STARTING, IT SHOULD BE CHECKED THAT THE ENGINE TURNING CORRESPONDS WITH THE FILTER PROGRAMMING IN PANELS WHICH ARE SUPPLIED BY</p>

### DESCRIPTION


The different monitoring and control components can be found in the control panel:

- Pilot lights:
  - Yellow: It turns on when there is energy.
  - Red: It turns on when a backwashing cycle is produced
- The bush button has two functions:
  - To generate a manual backwashing cycle.
  - To rearm the equipment when it fails.
- Differential (**DIF**).
  - 1 + N, 40A 30 mA.
- Power supply (**FA**).
  - 230 V / 24 VCC
- A relay that can be programmed (**LG**).
  - EASY 24V DC 8 entries/ 4 LCD outputs

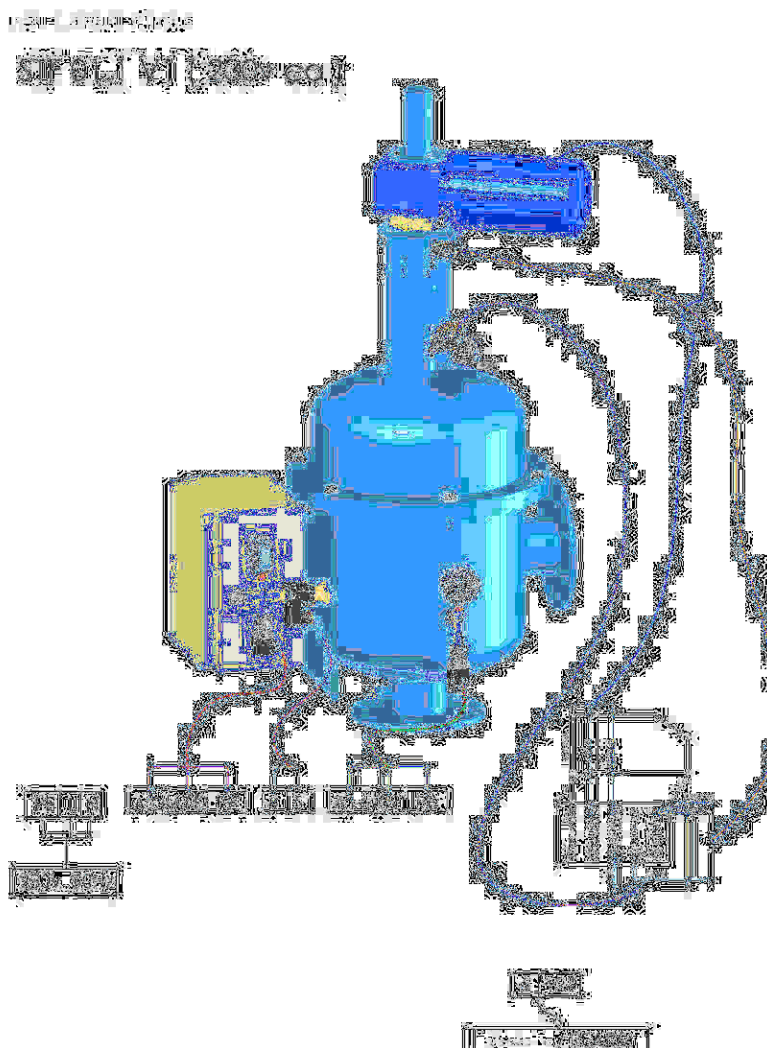
The messages that appear in the relay that can be programmed are specified in sections 12.2 and 13.



## 12.1. – CONNECTION

<b>BEWARE!</b>	
	<p>ELECTRICAL DISCHARGE RISK. THE OPERATIONS INDICATED WITH THIS SYMBOL SHOULD BE CARRIED OUT ONLY BY SKILLED TECHNICAL STAFF.</p>

The supply, sensor and equipment actuators connection is carried out in the lower terminal block according to the following specifications:



- Panel supply: **PE – L – N**
- Engine supply output:
  - Connections box: **X1.1 – X1.2 – X1.3**
- Electrically operated valve supply output: **4 – 5**
- Backwashing entry / External rearm: **+24 - 6**
- Front limit switch entry:
  - Panel :**+24 – 8**
  - Connections box: **X1.5 – X1.8**
- Back limit switch entry:
  - Connections box: **X1.5 – X1.9**
- Clean water pressure transducer entry signal: **A1+ - AN1 – PE**
- Wastewater pressure transducer entry signal: **A2+ - AN2 – PE**

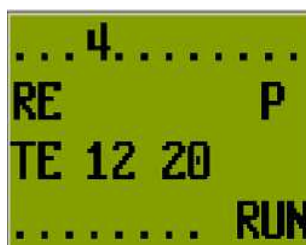


## 12.2. – PERFORMANCE

The start screen shows the following information, the upper...3.4..., indicate the entry signals into the programmer.

- Parameter 1 – Manual backwashing push button
- Parameter 2 – Differential pressure switch.(Pressure transducers are used by default)
- Parameter 3 – Front limit switch.
- Parameter 4 – Back limit switch.

Besides this, the date and time appear on the display, (RUN) if the programmer is on or (STOP), if it is stopped. In the event of the equipment is stopped it will not make backwashing cycles. P indicates the push-button.



Start screen image

When a backwashing cycle starts a screen that monitors the time in seconds and milliseconds appear. When the cycle finishes the start screen appears again.



Filter backwashing screen image

Pulse to check the time that has passed from the last backwashing (it appears in hours and minutes) and the total equipment backwashings number by pressing the key ◀ or ▶ while the start screen is on.

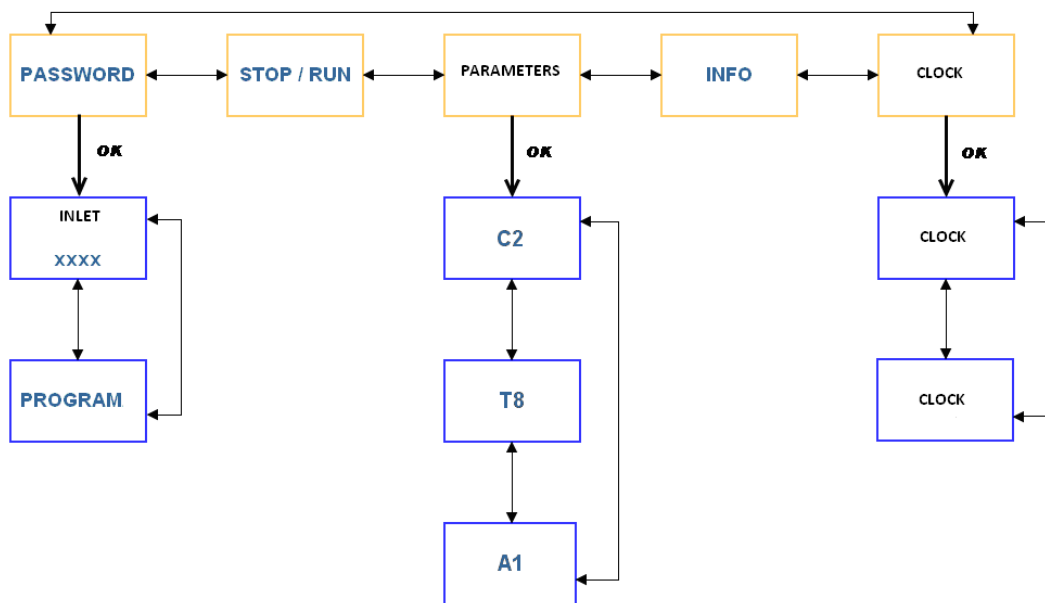


Last backwashing & total backwashings screen image

### 12.3. –MODIFYING PARAMETERS

It is useful to observe the diagram that is shown in order to have access to the different program functions. In the same diagram the main menu and several submenus appear. Pulse OK in order to have access to the main menu functions.

Press keys ▼▲ in order to change the menu selection. Press OK key in order to have access and ESC to turn back.



- **PASSWORD:** It allows you to have access to the program, it is protected to avoid non-authorized modifications by the manufacturer.
- **RUN / STOP:** It allows you to stop the running cycle when the STOP key is pressed.

The symbol ✓ appears next to the present condition on the LCD screen. Use keys ▼▲ in order to change it and select STOP RUN (a flickering appears) and press OK.

- **PARAMETERS:** It allows you to have access to the installation modifiable parameters

Press keys ▼▲ in order to select the PARAMETERS (a flickering appears) and press OK. The parameters are the following:


**C2– Consecutive backwashing meter.**

It shows the consecutive automatic backwashings number during which the pressure switch keeps sending a continuous signal. In this case the value is 20. At the moment when the consecutive automatic backwashings get this value, the filter will go into alarm. (Consult ALARM section)

- S – Setpoint value
- C – Meter real value

Press keys ▼▲ to move over S. Press OK to modify values by using keys ▼▲ and ◀▶ . When finished, press OK again to accept the new value.

Press ESC to quit.

<b>BEWARE!</b>	
	<p>IT IS NOT ADVISABLE TO MODIFY THIS VALUE. IF WATER QUALITY WORSENS IN A SPECIFIC MOMENT, THIS VALUE WILL BE MODIFIED TO A HIGHER ONE SO THAT THE FILTER CAN RECOVER AUTOMATICALLY.</p>

**T8– Time between backwashings**

It shows the backwashing time in hours and minutes. These figures turn back to zero every time a manual or automatic backwashing is carried out. This valor can be modified according to installation needs.

- I1 – Backwashing time value in hours and minutes (H:M)
- T – Time in hours and minutes (H:M) since last backwashing

Press keys ▼▲ to move over I1. Press OK to modify values by using keys ▼▲ and ◀▶ . When finished, press OK in order to accept the new value.

Press ESC to quit.

**A1 – Pressure difference set value when working with pressure transducers.**

It shows the pressure difference of the automatic backwashing cycle start when using pressure transducers:

- I1 – Effluent water pressure reading
- I2 – Influent water pressure reading
- OS – Set value

Press keys ▼▲ to move over OS. Press OK to modify values by using keys ▼▲ and ◀▶ . When finished, press OK again in order to accept the new value.

Press ESC to quit.

**BEWARE!**

IT IS NOT ADVISABLE TO MODIFY THIS VALUE.  
THE DIFFERENTIAL SHOULD NEVER BE INCREASED, IT CAN ONLY BE  
MODIFIED TO LOWER VALUES IN ORDER TO BACKWASH

### 13. – WARNINGS AND ALARMS

1. When the programmer makes the number of backwashings consecutively indicated in parameter C2 (the setpoint is 20) there is no possibility to go on filtering, the safety device that will stop the filter backwashing will activate.

The panel alarm light will turn on and the inscription **ALARM 20 CONSECUTIVE BACKWASHINGS** will appear on the programmer screen.

This alarm indicates that the pressure differential gets to the electrical panel, this can be due to a measure sensor failure, dust in the filters or dust in the water to be filtered.

Unblock the pressure switch or press the START, REARM, ALARM button in order to delete the alarm.

2. If during the backwashing any of the engines running is stopped, the message LIMIT SWITCH ALARM will appear on the screen.  
This alarm does not need to be rearmed, it is necessary to check that the limit switch signal gets correctly to the panel, then backwash.

If this is not corrected, please contact the manufacturer.

## 14. – ELECTRIC DIAGRAM

Diagram 1 of 2

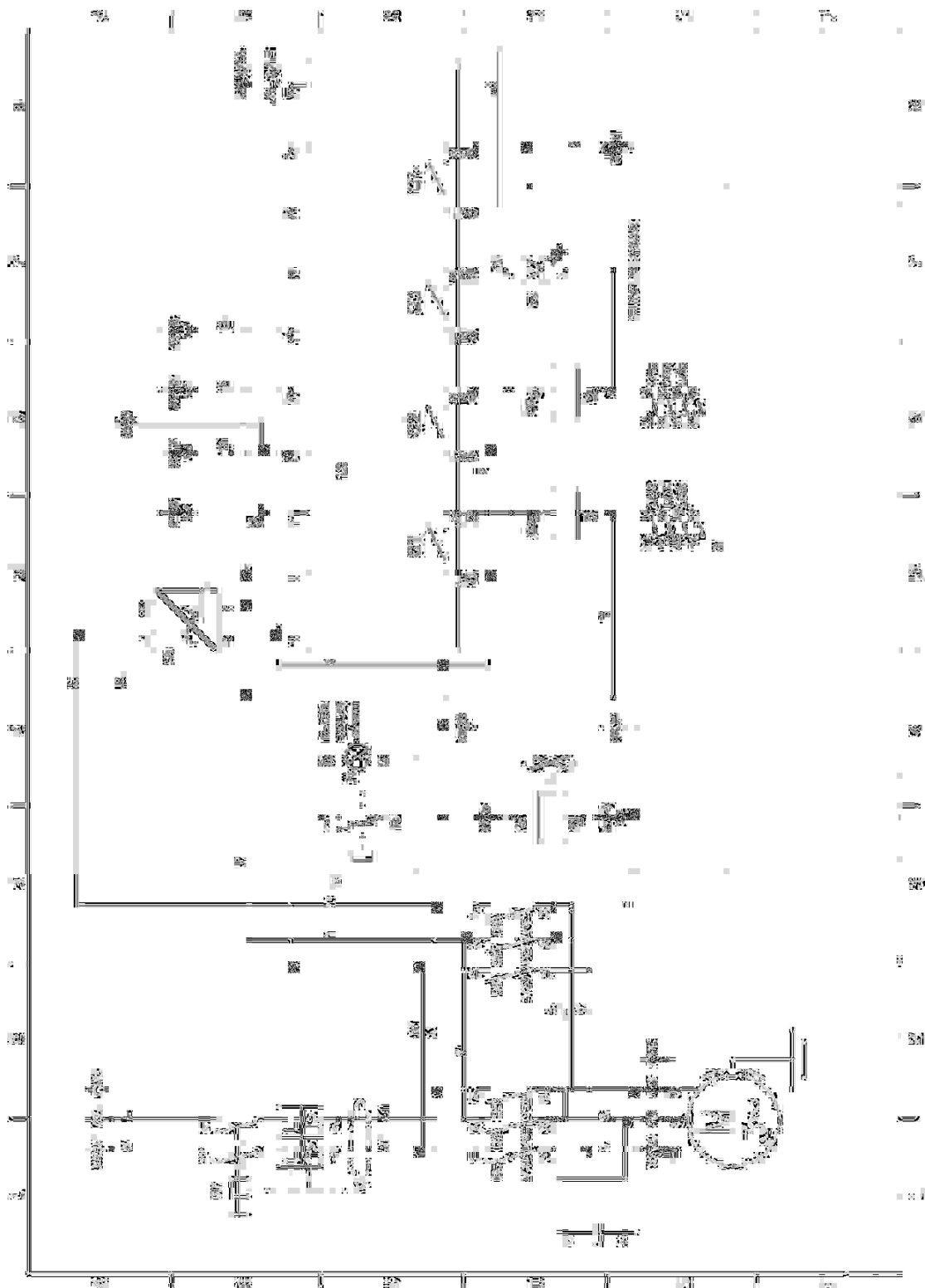
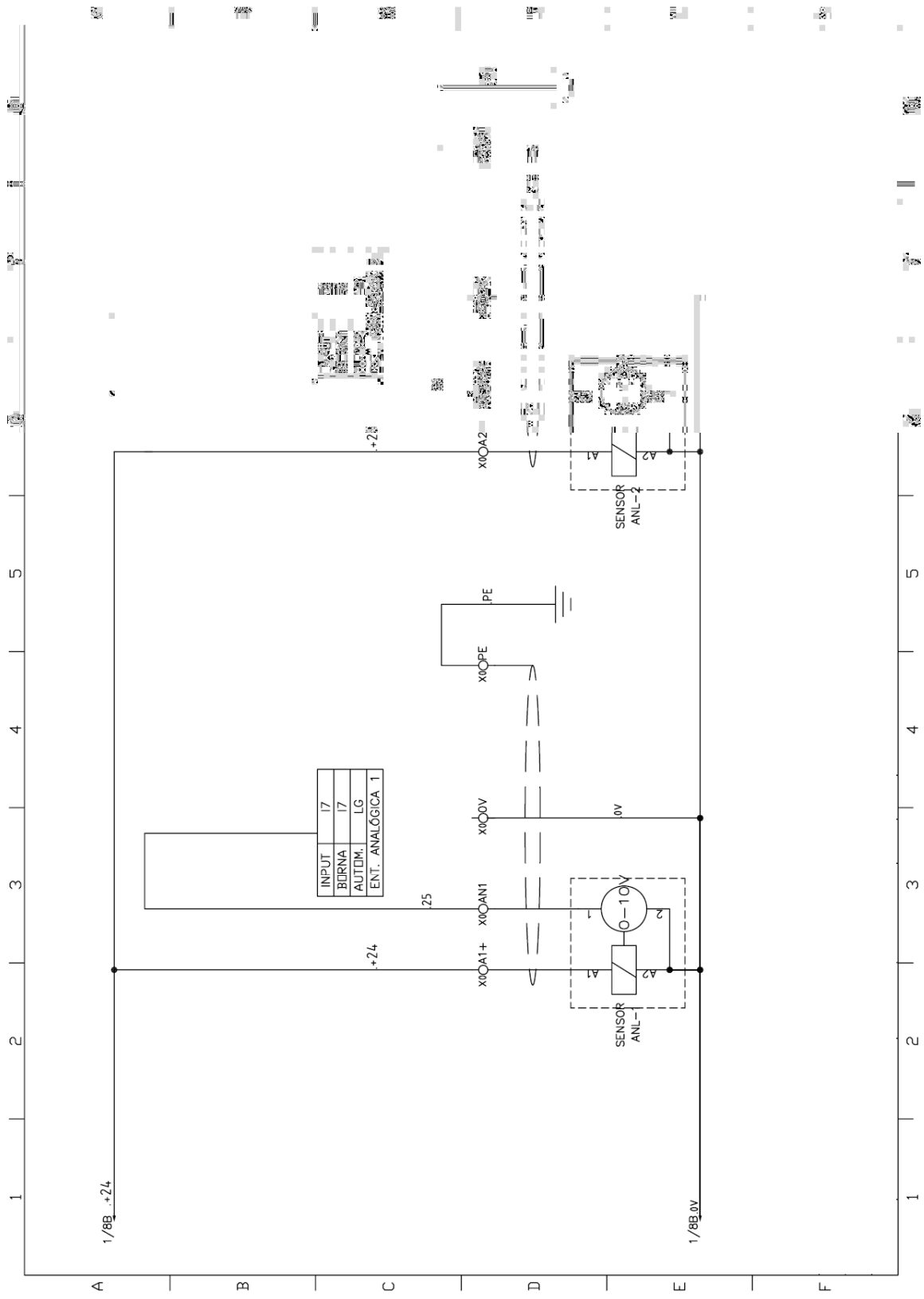
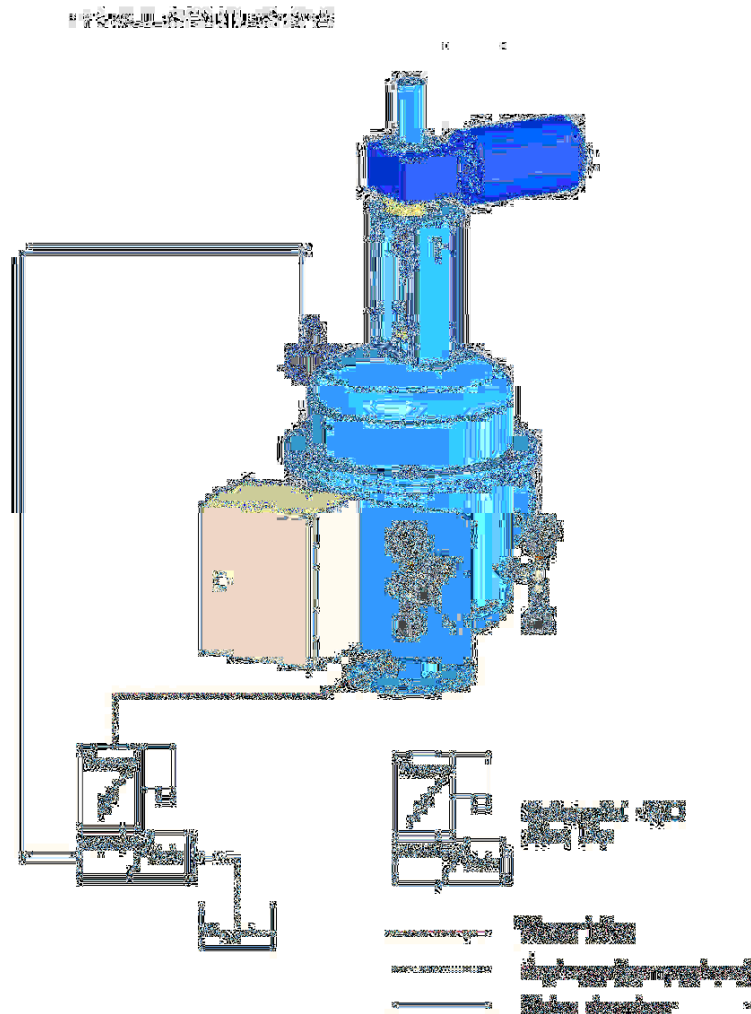


Diagram 2 of 2



## 15. – HYDRAULIC CIRCUIT



The filter has a hydraulic valve for draining the backwashing flow. The valve remains closed because of the internal spring, and it opens when introducing water in the lower chamber and it closes when the drain is in process.

The valve has a mechanic regulation that allows to adjust the backwashing flow in installations with a pressure superior to 6 bar.

The opening and closing process is automated by means of a 24V DC NC solenoid (normally closed). It is specified in the drawing below.

The 3-way valve has to remain in AUTO position, allowing the possibility to operate manually with the OPEN and CLOSE positions.



**BEWARE!**

FILTER THAT PROTECTS THE CIRCUIT MAINTENANCE BY MEANS OF USUAL BACKWASHINGS.

LONG DISTANCE DRAINAGE CONDUCTION CAN RESULT IN OPERATION PROBLEMS.

**NOTE**

THE PREVIOUS DIAGRAM IS VALID ONLY FOR STANDARD EQUIPMENTS WITH MAXIMUM 10 BAR PRESSURE.

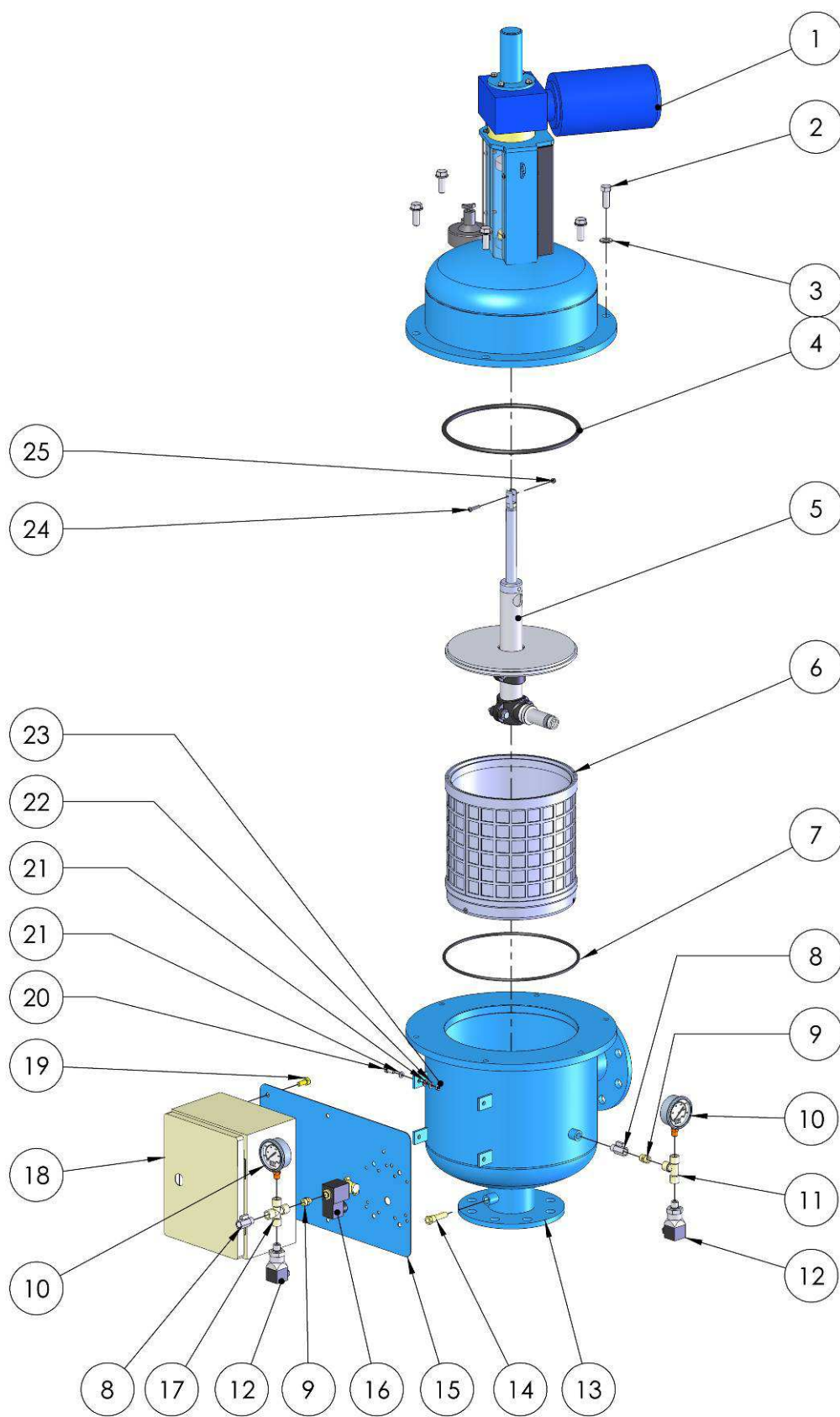
ASK THE MANUFACTURER IN CASE OF DIFFERENT PRESSURES.

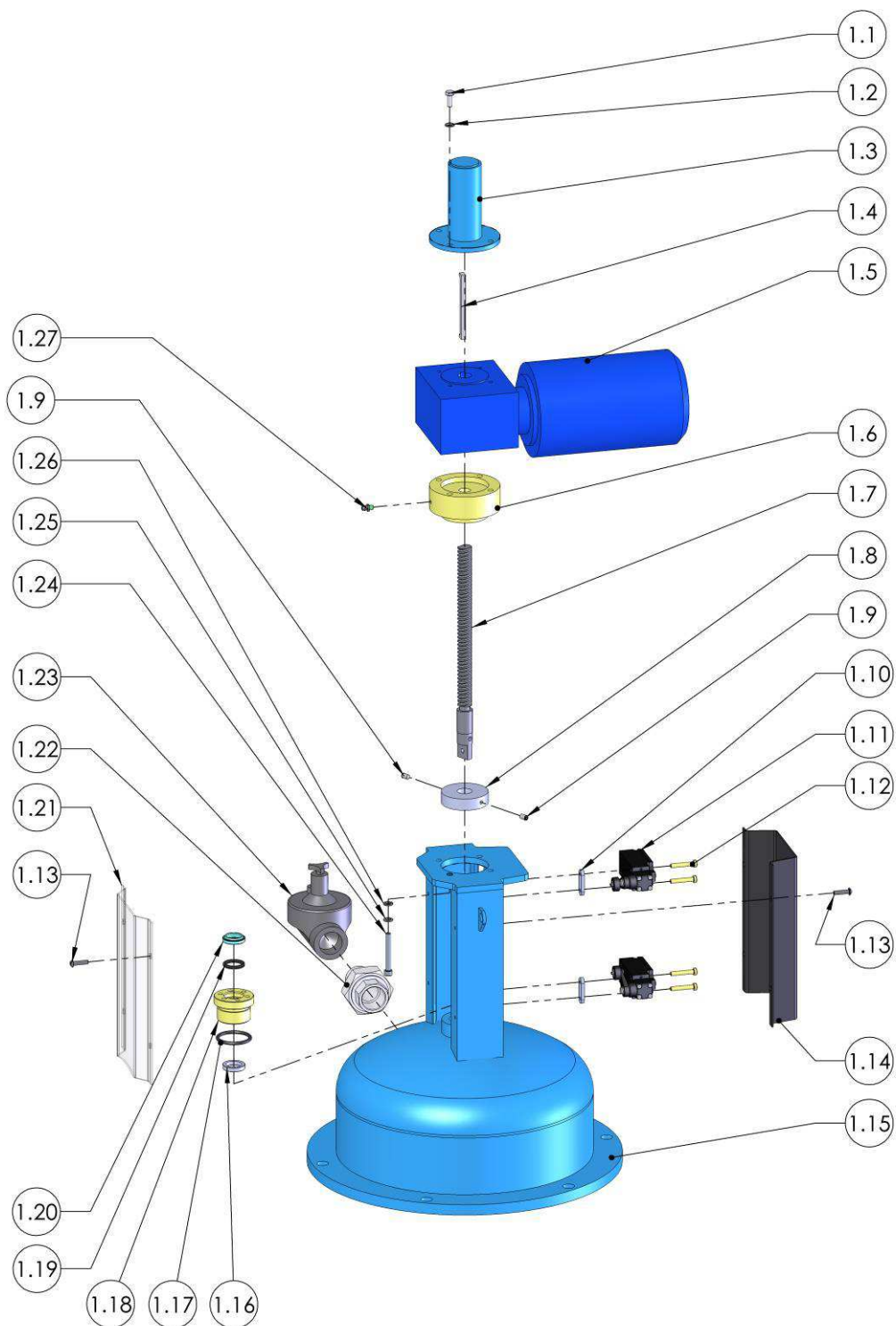
## 16. – EXPLOSION DRAWING

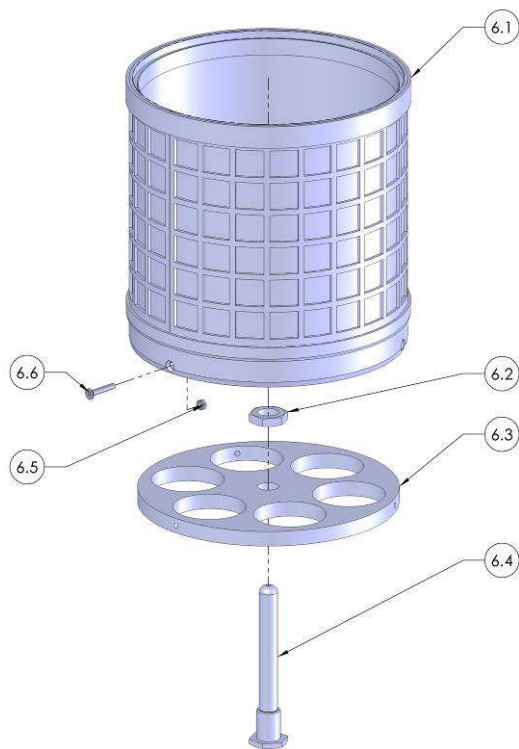
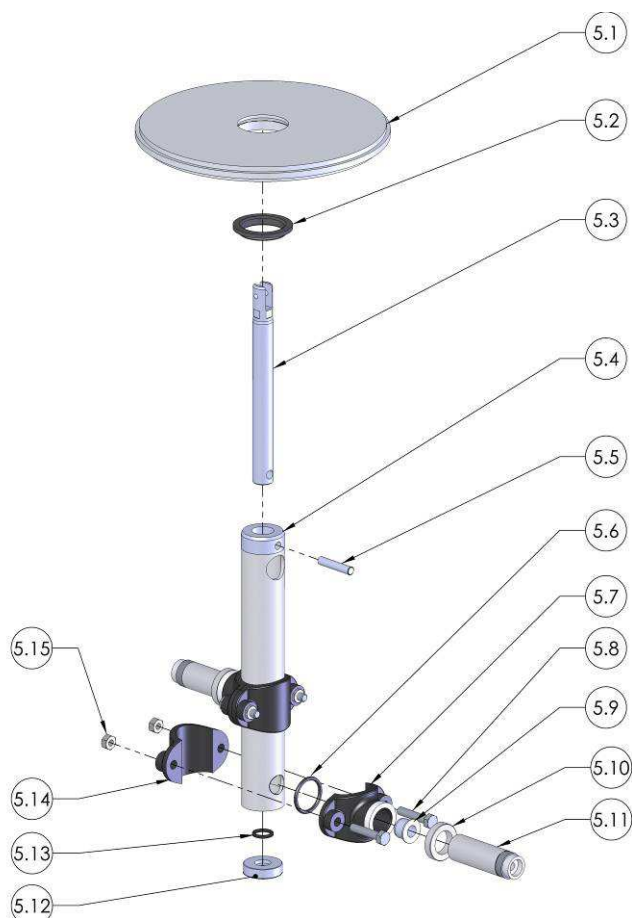
Order	Equipment model	Description	Number of units
1		COVER	
1.1	FMA-1002-E - FMA-1006-E	M6x15 screw	4
1.2	FMA-1002-E - FMA-1006-E	M6 washer	4
1.3	FMA-1002-E - FMA-1006-E	Spindle protection	1
1.4	FMA-1002-E - FMA-1006-E	Machine key	1
1.5	FMA-1002-E - FMA-1006-E	Gear engine 27rpm 188w	1
1.6	FMA-1002-E - FMA-1006-E	Nut	1
1.7	FMA-1002-E - FMA-1006-E	Spindle	1
1.8	FMA-1002-E - FMA-1006-E	Limit switch	1
1.9	FMA-1002-E - FMA-1006-E	M6x12 screw	2
1.10	FMA-1002-E - FMA-1006-E	Lashing limit switch sheet metal	2
1.11	FMA-1002-E - FMA-1006-E	Omron limit switch with pullier	2
1.12	FMA-1002-E - FMA-1006-E	M5x30 screw	4
1.13	FMA-1002-E - FMA-1006-E	M5x15 screw	8
1.14	FMA-1002-E - FMA-1006-E	High protection sheet metal	1
1.15	FMA-1002-E / FMA-1003-E	Cover	1
	FMA-1004-E / FMA-1006-E	Cover	1
1.16	FMA-1002-E - FMA-1006-E	NI joint-150 20x28x5,5	1
1.17	FMA-1002-E - FMA-1006-E	ø37x4 O-ring	1
1.18	FMA-1002-E - FMA-1006-E	Rim watertightness	1
1.19	FMA-1002-E - FMA-1006-E	EQ-16 Quadric joint	1
1.20	FMA-1002-E - FMA-1006-E	Scraper AUASOB 20x28x4,8/7	1
1.21	FMA-1002-E - FMA-1006-E	Low protection Sheet metal	1
1.22	FMA-1002-E - FMA-1006-E	Nut for joining 3 pieces Male/Female Gas thread1"	1
1.23	FMA-1002-E - FMA-1006-E	Valve S.200 Globo Gas thread 1"	1
1.24	FMA-1002-E - FMA-1006-E	M6x50 screw	4
1.25	FMA-1002-E - FMA-1006-E	M6 washer	4
1.26	FMA-1002-E - FMA-1006-E	M6 washer	4
1.27	FMA-1002-E - FMA-1006-E	M6 screw feed grease cup	1
2	FMA-1002-E - FMA-1006-E	M12x35 screw	6
3	FMA-1002-E - FMA-1006-E	M12 washer	6
4	FMA-1002-E / FMA-1003-E	ø245x8 o-ring	1
	FMA-1004-E / FMA-1006-E	ø312x8 o-ring	1
5		SCANNER	
5.1	FMA-1002-E / FMA-1003-E	Backwashing chamber disk	1
	FMA-1004-E / FMA-1006-E	Backwashing chamber disk	1
5.2	FMA-1002-E - FMA-1006-E	H joint without spring	1
5.3	FMA-1002-E - FMA-1006-E	Scanner shaft	1
5.4	FMA-1002-E	Scanner	1
	FMA-1003-E	Scanner	1
	FMA-1004-E	Scanner	1
	FMA-1006-E	Scanner	1
5.5	FMA-1002-E - FMA-1006-E	Pulling bolt	1
5.6	FMA-1003-E - FMA-1004-E	ø30x3.5 o-ring	2

Order	Equipment model	Description	Number of units
	FMA-1006-E	ø30x3.5 o-ring	4
5.7	FMA-1003-E - FMA-1004-E	Upper clamp	2
	FMA-1006-E	Upper clamp	4
5.8	FMA-1003-E - FMA-1004-E	M8x35 screw	4
	FMA-1006-E	M8x35 screw	8
5.9	FMA-1003-E - FMA-1004-E	Nozzle support guide bush	2
	FMA-1006-E	Nozzle support guide bush	4
5.10	FMA-1002-E - FMA-1004-E	3/4" nozzle nut	2
	FMA-1006-E	3/4" nozzle nut	4
5.11	FMA-1002-E	Nylon brushes nozzle	2
	FMA-1003-E	Nylon brushes nozzle	2
	FMA-1004-E	Nylon brushes nozzle	2
	FMA-1006-E	Nylon brushes nozzle	4
5.12	FMA-1003-E - FMA-1006-E	Centralizer shaft guide bush	1
5.13	FMA-1003-E - FMA-1006-E	EQ-12 quadric joint	1
5.14	FMA-1003-E - FMA-1004-E	Lower clamp	2
	FMA-1006-E	Lower clamp	4
5.15	FMA-1003-E - FMA-1004-E	M8 nut	4
	FMA-1006-E	M8 nut	8
6		FILTERING CARTRIDGE	
6.1	FMA-1002-E	Cartridge PVC screen ..... Microns	1
		Cartridge STAINLESS STEEL screen .....Microns	1
	FMA-1003-E	Cartridge PVC screen ..... Microns	1
		Cartridge STAINLESS STEEL screen .....Microns	1
	FMA-1004-E	Cartridge PVC screen ..... Microns	1
		Cartridge STAINLESS STEEL screen .....Microns	1
	FMA-1006-E	Cartridge PVC screen ..... Microns	1
		Cartridge STAINLESS STEEL screen .....Microns	1
6.2	FMA-1003-E - FMA-1006-E	Nut centralizer shaft	1
6.3	FMA-1002-E / FMA-1003-E	Centralizer disk	1
	FMA-1004-E / FMA-1006-E	Centralizer disk	1
6.4	FMA-1002-E	Centralizer shaft	1
	FMA-1003-E - FMA-1006-E	Centralizer shaft	1
6.5	FMA-1002-E - FMA-1006-E	M5 nut	4
6.6	FMA-1002 / FMA-1003-E	M5x20 screw	4
	FMA-1004-E / FMA-1006-E	M5x30 screw	4
7	FMA-1002-E / FMA-1003-E	ø248x5 o-ring	1
	FMA-1004-E / FMA-1006-E	ø315x5 o-ring	1
8	FMA-1002-E - FMA-1006-E	Ball valve M/H Gas thread 1/4"	2
9	FMA-1002-E - FMA-1006-E	1/4" adaptor nipple	2
10	FMA-1002-E - FMA-1006-E	Glycerine pressure gauge Male Gas thread 1/4"	2
11	FMA-1002-E - FMA-1006-E	Male TE 1/4"	1
12	FMA-1002-E - FMA-1006-E	Pressure transducer Male Gas thread1/4"	2
13	FMA-1002-E	FMA-1002-E casing	1
	FMA-1003-E	FMA-1003-E casing	1
	FMA-1004-E	FMA-1004-E casing	1
	FMA-1006-E	FMA-1006-E casing	1
14	FMA-1002-E - FMA-1006-E	1/4" inlet filter	1

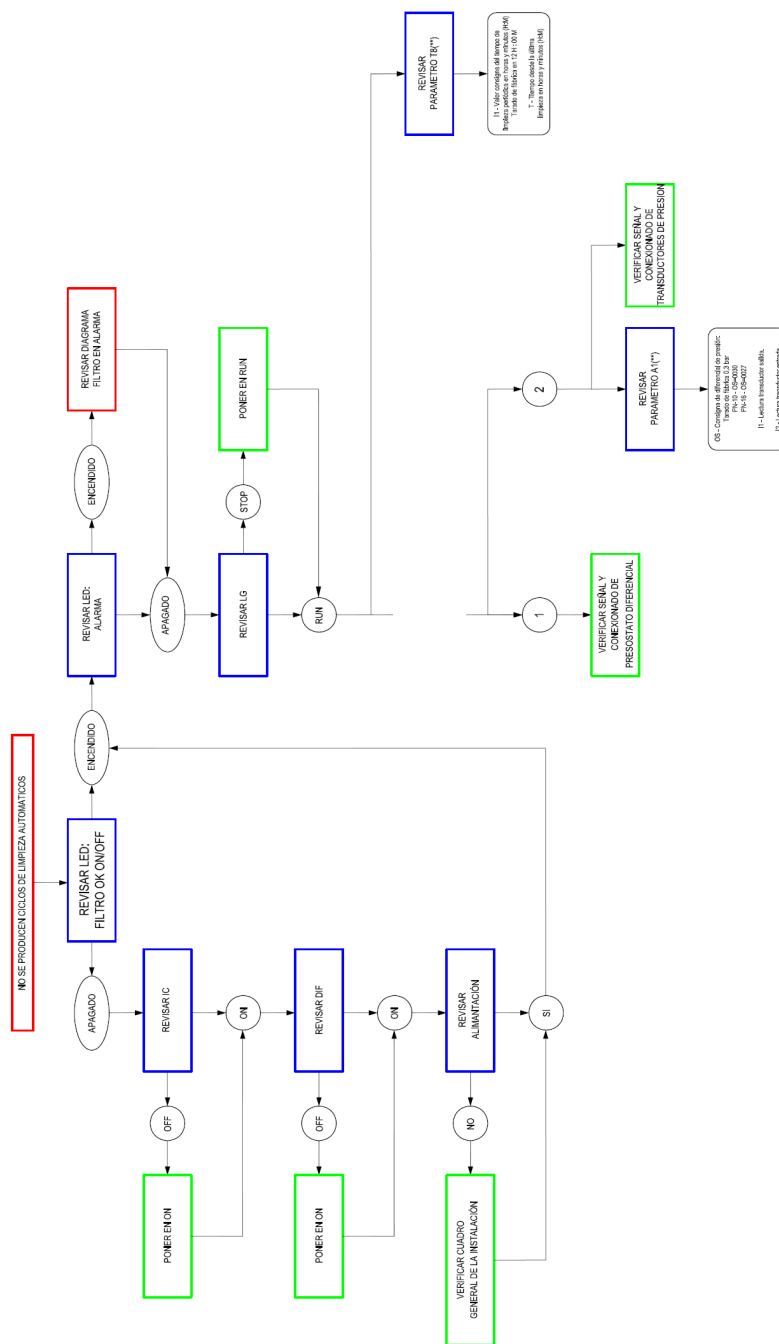
Order	Equipment model	Description	Number of units
15	FMA-1002-E - FMA-1006-E	Electric panel support	1
16	FMA-1002-E - FMA-1006-E	NO 24v Dc solenoid	1
17	FMA-1002-E - FMA-1006-E	1/4" female crossing	1
18	FMA-1002-E - FMA-1006-E	Electric panel STF-01.1 v1 ( 230V ca )	1
19	FMA-1002-E - FMA-1006-E	M6x15 screw	4
20	FMA-1002-E - FMA-1006-E	M6x20 screw	4
21	FMA-1002-E - FMA-1006-E	M6 washer	8
22	FMA-1002-E - FMA-1006-E	M6 washer	4
23	FMA-1002-E - FMA-1006-E	M6 nut	4
24	FMA-1002-E - FMA-1006-E	M5x25 screw	1
25	FMA-1002-E - FMA-1006-E	M5 nut	1





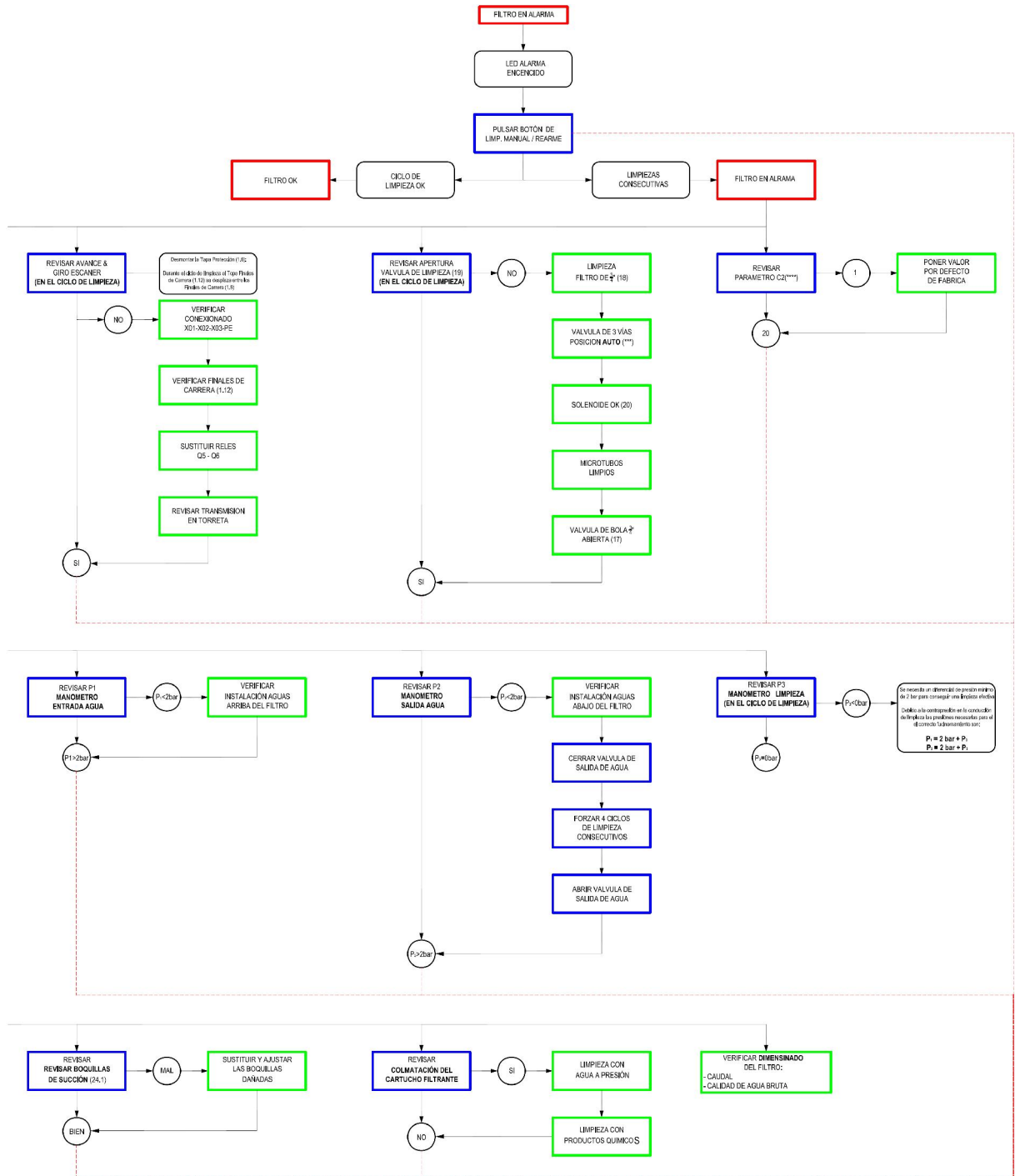


### 17. – ERROR DETECTION



(\*\*) T8 – Time between backwashings.  
See programmer panel / Modify parameters





(\*\*\*) – See hydraulic circuit section.

(\*\*\*\*) C2 – Consecutive pieces counter.  
See programmer panel section / Modify parameters

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