



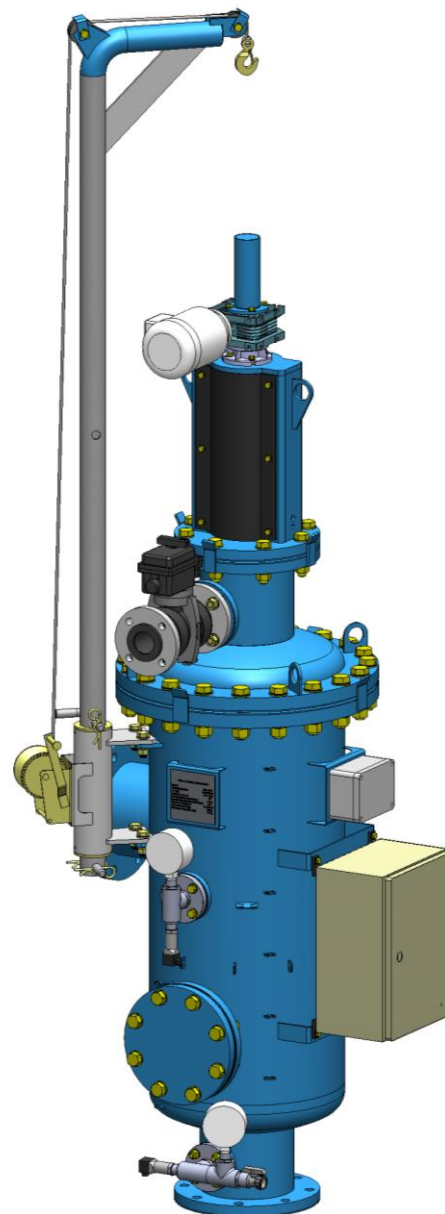
FMA – 9000

OMICRON WATER TECHNOLOGIES
models 5300, 8000, 10600,
13200, 16500, 21300 (V)



526 West 26 Street
New York NY 10001
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INSTALLATION, OPERATION AND MAINTENANCE MANUAL



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IMPORTANT

PLEASE READ CAREFULLY AND FOLLOW THESE DEVICE MANUAL INSTRUCTIONS. THE MANUFACTURER IS NOT RESPONSIBLE FOR DAMAGES OR NEGLIGENCE OCCURRING 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 its designed usage, provided that:

Installation, management and maintenance must be carried out according to these manual instructions.

Facilities conditions and supply voltage must follow the specified instructions.

Any different usage from what is instructed will be incorrect. Unauthorized modifications are not permitted by the manufacturer. Damages resulting from incorrect usage will be the user's responsibility and will automatically void the warranty. Liability for injuries or damage caused by improper use of the device lies solely with the user.

Remember this device contains live electrical components; any servicing or maintenance work must be done by qualified experts abiding by necessary precautions. Disable the power supply before accessing internal parts.

READ AND KEEP THESE INSTRUCTIONS

*We really want you to save time and money!
Reading this entire manual will assure
correct installation and safe product usage.*

CAUTION!



ELECTRICAL DISCHARGE RISK. OPERATIONS INDICATED WITH THIS SYMBOL MUST BE PERFORMED ONLY BY SKILLED TECHNICAL PERSONNEL.

WARNING!



ESSENTIAL INFORMATION AND FEATURES.
KEEP THIS DEVICE DOCUMENTATION FOR REFERENCE.

NOTE



HIGHLY IMPORTANT INFORMATION AND FEATURES.

	SISTEMAS DE FILTRADO Y TRATAMIENTO DE FLUIDOS, S.A. Poligono La Armentera, parcela 87 22400 Monzón (Huesca) ESPAÑA/Spain
	Tel: (+34) 974 40 19 33 / Fax: (+34) 974 41 78 09 info@stf-filtros.com / www.stf-filtros.com

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)

DESCRIPCIÓN DE LA MÁQUINA: <i>Machine description:</i>	FILTRO DE MALLA AUTOLIMPIANTE ELÉCTRICO <i>ELECTRIC SELF-CLEANING SCREEN FILTER</i>
FUNCIÓN: <i>Function:</i>	RETENCIÓN DE SÓLIDOS EN SUSPENSIÓN <i>SUSPENDED SOLID RETENTION</i>
MODELO / TIPO: <i>Model / Type:</i>	
NÚMERO DE SERIE: <i>Serial Number:</i>	
LA MÁQUINA SE ENCUENTRA EN ANEXO IV? <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.

DESCRIPCIÓN DEL EQUIPO: <i>Equipment description:</i>	FILTRO DE MALLA AUTOLIMPIANTE <i>SELF-CLEANING SCREEN FILTER</i>
PRESIÓN DE DISEÑO / TEMPERATURA DISEÑO <i>Design Pressure / Design Temperature</i>	PN / °C
FLUIDO A CONTENER/ GRUPO S. D 67/548/CEE <i>Fluid / Fluid group S/D. 67/548/CEE :</i>	AGUA / GRUPO 2 <i>WATER / GROUP 2</i>
CATEGORÍA DEL EQUIPO / MÓDULO <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 its self-backwashing automatic filter(s).

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

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

CONTACT US



SISTEMA DE FILTRADO Y TRATAMIENTO DE FLUIDOS S.A

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2. – WARRANTY

WARRANTY CERTIFICATE

TWO YEAR 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) month period set forth herein.

Exclusions and Limitations

1. This warranty will be null and void under the following circumstances:
 - a. Incorrect use, negligence or accident.
 - b. Unauthorised modifications or incorrect installation of the product.
 - c. Failure to observe the instructions for product installation and maintenance.
 - d. Product repair or modifications by unqualified personnel.
 - e. Power failures, flooding, fire, accidental breakage or any other events outside the control of STF-FILTROS.

2. The two-year warranty does not cover any transportation, customs clearance or any other costs arising from the return of the product, returning repaired products or replacing products, or any expenses associated with installing, removing or reinstalling the same.

3. Warranty claims will not be honoured if the type or serial number of the products of STF FILTROS has been altered, removed or made illegible.

4. The warranty stipulated in this certificate is only available to our direct customers.

Model	
Series No.	---/----

Issue Date

Delivery Note No.

Authorised Signature

3. – SAFETY

INSTRUCTIONS ON HOW TO USE THE FILTER SAFELY



THE INCORRECT USE OR MAINTENANCE OF THE EQUIPMENT MAY CAUSE PHYSICAL INJURIES.

IT IS STRONGLY RECOMMENDED TO COMPLY WITH THE FOLLOWING INSTRUCTIONS IN ORDER TO AVOID RISKS.

USE ACCIDENT PREVENTION MEASURES TO ASSURE YOUR SAFETY AND EQUIPMENT SAFETY.

- **Do not touch moving parts.**

Never place your hands, fingers or any other body parts near the moving parts of the filter.

- **Do not touch the filter without protection.**

Never use the filter without protections if they are not perfectly settled in place (e.g. Protection cover). If the maintenance operations require their removal make sure that before using the new filter the protections are well fixed in their respective places.

- **Protection against electric shocks.**

Prevent accidental contact between the electrical and metallic parts of the device.

- **Disconnect the filter.**

Disconnect the device from the power source before performing any assistance, inspection, maintenance, cleaning, changing or part verification operations.

- **Release filter pressure.**

Release pressure in the device before performing any assistance, inspection, maintenance, cleaning, changing or part verification operations.

- **Working area.**

Maintain the working area clean and free of unnecessary tools. Sparks may be produced while the device is in operation; do not use the device in the presence of varnish, petrol or other flammable or explosive substances.

- **Filter maintenance.**

Follow the instructions in this manual: check the lubrication; regularly inspect the power cable and if it is damaged have it repaired by qualified personnel. Check the exterior has no visible anomalies.

- **Ensure the screws, pins and cover are securely fastened.**

Regularly check they are securely fastened.

- **Ensure the device operates at correct voltage.**

Pay attention to the voltage specified in this manual and on the filter information label.

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

If the filter runs making unusual noises, excess vibration or it looks faulty, stop its running immediately and check its functionality.

- **Only use genuine replacement parts.**

The use of non-original spare parts invalidates the warranty.

- **Do not modify the filter.**

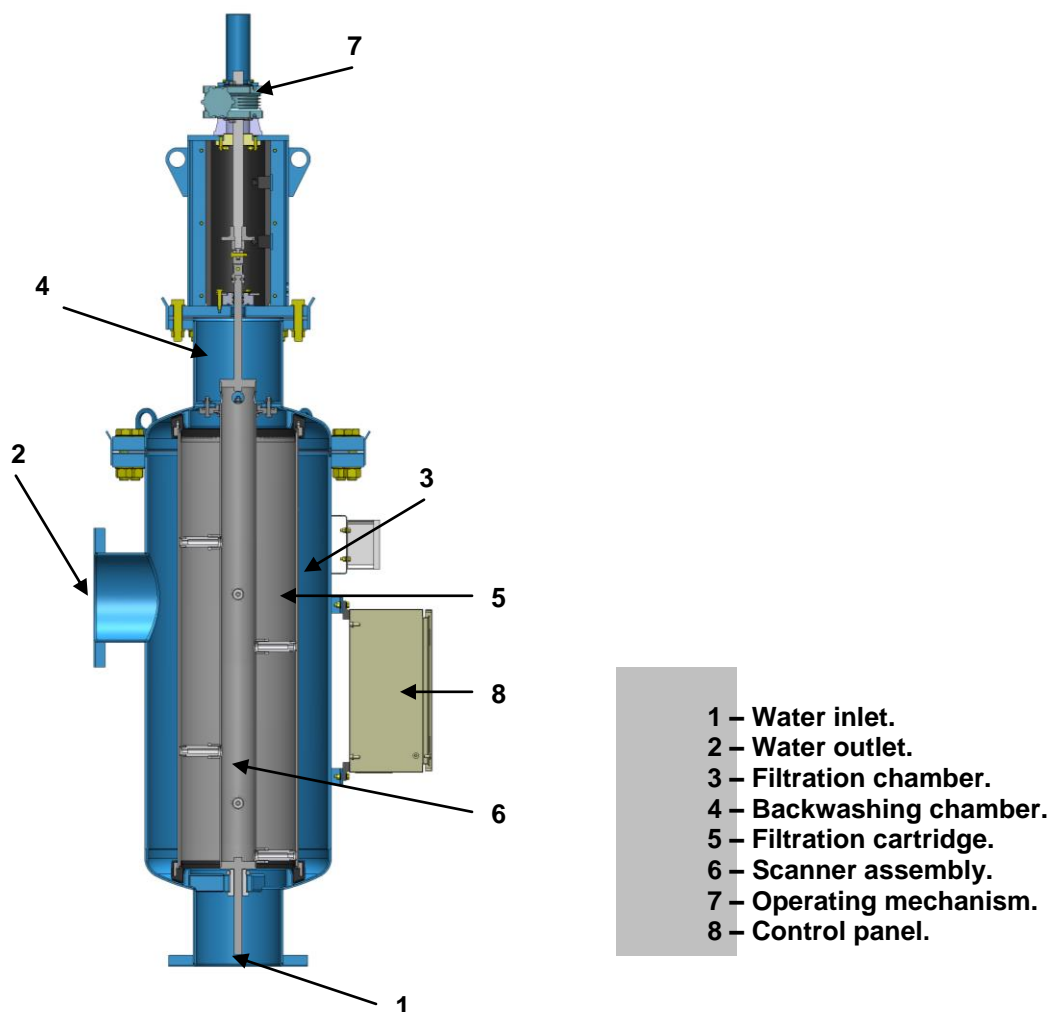
Unauthorised modification may diminish device performance and cause serious accidents to personnel who are not sufficiently technically knowledgeable.

- **Disconnect and drain the device.**

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

4. – FMA-9000 FILTER DESCRIPTION

The filter is comprised of an exterior housing within which two separate chambers are contained: The first filtration chamber connects to the water inlet port where the Filter Mesh is located, and a second, backwashing chamber.



The water flows outwards from inside the filtering body. Suspended solids (dirt) are retained in the filtering element, i.e. in the mesh. This chamber connects with the filtered water outlet to the required application: drinking water, process water, cooling water, etc.

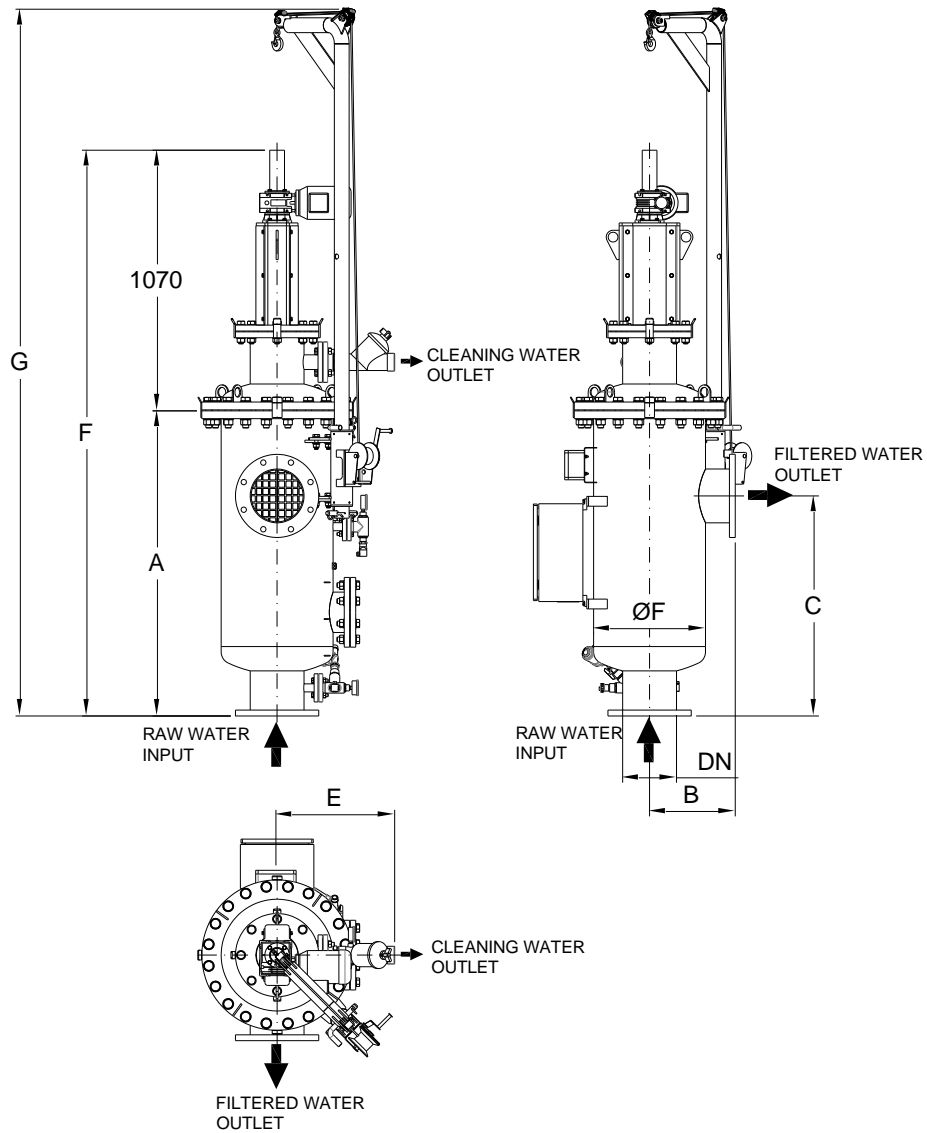
The dirt retained gradually forms a cake on the mesh, which generates a given pressure drop. Cleaning of the filter is supported by a second chamber, the cleaning chamber, which outlet is connected to the drain valve allowing evacuation of the wash water when generating the self-cleaning process. The cleaning chamber is separated from the filter chamber using a special seal.

The suction scanner is a vital element of this technology. This scanner occupies the exact position that the central shaft of the filtering cartridge would occupy, and is hydraulically connected to the cleaning chamber. In turn, the suction nozzles are arranged perpendicularly in the area that it occupies in the filtration chamber, with the nylon bristles reaching a few microns away from the mesh. The location of these nozzles in the suction scanner has been designed to come into contact with the entire inner surface of the mesh, thanks to the spiral movement provided to the scanner by the electric motor by combining longitudinal displacement and rotation. The minimum pressure is 3 bar for a micronage of 10 μm . When the pressure is lower than the minimum, the flush cycle will be supported by a booster pump.

5. – FMA-9000 OPERATION

- The water enters the filtration chamber, passing through the fine mesh, producing surface mechanical filtration. This provides high quality water, per the degree of filtration chosen for the filtration mesh, which can vary from 10 microns to 2000 microns.
- Particles remaining on the thin screen interior gradually produces head loss between the filter inlet and outlet. Two analogic transducers will indicate the backwashing sequence when the DP becomes 0.3 (3 m.c.a). There are other means to indicate filter backwashing: Timed backwash, time and pressure combination, continuous backwashing option.
- When the pressure switch indicates 0.3 bar, the drain valve receives the opening signal, then generates a pressure differential between outside (atmospheric pressure) and inside of the filter (working pressure) which produces fast moving water that goes through the screen, and then goes outside through the nozzles' internal orifices. Additionally at the same time the start signal is sent to the motor.
- The result of these actions is the suction effect of the nozzles on the screen-collected particles and the suction scanner's spiral movement in the inside of the filter.
- During the 25-second backwashing process (32 seconds for 10 micron screens), water is still being filtered and goes on flowing to the system or application. This feature of the filter's design allows backwashing water consumption to be minimal and the working system to be continuous.

6. – TECHNICAL FEATURES

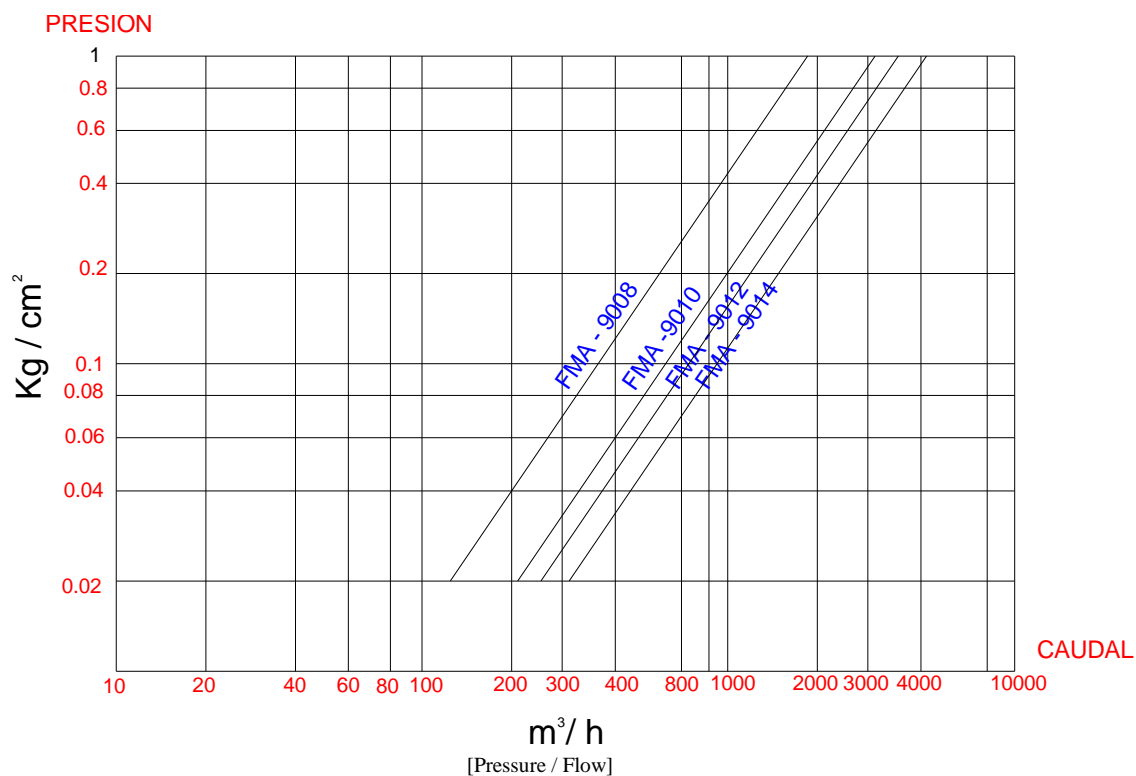


MODEL	DIMENSIONS (mm)								Net Filtering area (cm ²)
	A	B	C	DN	E	F	H	G	
FMA 9008	1250	350	900	200	480	457	2320	2975	9,400
FMA 9010	1530	350	900	250	480	457	2600	3300	11,900
FMA 9012	1250	400	900	300	480	608	2320	2975	14,700
FMA 9014	1530	400	900	350	480	608	2600	3300	19,150

MODEL	9006	9008	9010	9012	9014
GENERAL CHARACTERISTICS					
Inlet/Outlet Diameter ⁽¹⁾	DN-150 (6")	DN-200 (8")	DN-250 (10")	DN-300 (12")	DN-350 (14")
Max/Min working pressure	2 bar / 10 bar (For others, check options)				
Max. fluid temperature	50°C (Up to 95°C to order)				
PVC MESH SUPPORT					
Max. Flow (m ³ /h)	290	450	800	920	1,250
Gross area - filtration (cm ²)	7,350	9,800	12,250	16,100	20,100
Net area - filtration (cm ²)	4,800	6,400	8,000	10,300	12,800
Unladen weight (kg)	270	316	340	470	525
Filtration sizes	1,000, 500, 300, 200,125 and 100 microns				
STAINLESS STEEL MESH SUPPORT					
Max. Flow (m ³ /h)*	500	700	1,150	1,400	1,800
Gross area - filtration (cm ²)	7,990	10,600	13,210	16,500	21,300
Net area - filtration (cm ²)	6,900	9,400	11,900	14,700	19,150
Unladen weight (kg)	310	365	405	550	610
Filtration sizes	1,000, 500, 300, 200,125, 100, 80, 50, 25, 20 and 10 microns				
BACKWASHING					
Backwashing valve	G-2" thread				
Backwash cycle length	25 seconds				
Backwash flow (m ³ /h)	15	20	25	20	25
Backwash water consumption (litres)	105	140	175	140	175
ELECTRICAL DATA					
Supply voltage	220 V AC 50 Hz Single-phase (Optional 400 V AC Three-phase and 12 V DC)				
Control voltage	24 V DC (12 V DC in feeder 12 V DC)				
Electric motor power	0.37 kW (0.25 kW in 12 V option)				
Electric motor consumption	1.4 A				

* Flow rates below are stated for a 125 micron filtration screen. Lower maximum flow rates apply to finer micron-rated screens.

STANDARD MATERIALS	
Filter housing and covers	S-235-JR Carbon steel
Finish treatment	Polymerised epoxy-polyester powder paint covering in kiln.
Suction scanner	AISI-304 stainless steel
Filtration mesh	AISI-316 stainless steel
Suction nozzle	PVC with AISI 316 stainless steel ring and nylon bristles
Backwash valves	Cast with epoxy covering.
Bolting	Bichromate 5.6 and 5.8
Joints	NBR – EPDM - Viton
SPECIAL MATERIALS (OPTIONAL)	
Filter housing and covers	A-516 carbon steel / Stainless steel AISI 304 / AISI 316 / SuperDuplex
Finish treatment	Vulcanized covering: 3 mm interior and exterior for marine environment.
Suction scanner	Stainless steel: Duplex or Superduplex
Filtration mesh	Avesta 254 SMO stainless steel
Suction nozzle	Fully stainless steel Duplex or Superduplex with nylon brushes
Backwash valves	Activated hydraulically, electrically or pneumatically 'Check options for materials'
Bolting	A-2 or A-4 stainless steel
Joints	Check options



NOTE: Values for 125 micron cartridge. For any other degree of filtration, check with manufacturer.

7. – NAMEPLATE

All devices are identified by a nameplate affixed to the filter.

		Sistemas de Filtrado y Tratamiento de Fluidos,S.A. Pol.Armentera, parc.86-87 22400 Monzón (Huesca) Spain Tel: 0034 974 401 548 Fax: 0034 974 401 448 Email: info@stf-filtros.com			
SELF-CLEANING SCREEN FILTER					
MODEL					
INLET / OUTLET DIAMETER					
SERIAL NUMBER					
FILTRATION DEGREE (Micron)					
MAX. WORKING PRESSURE (Kg/cm ²)					
MAX. WORKING TEMP. (°C)					
BACKWASH VALVE					
EMPTY WEIGHT (Kg)					
OPERATING WEIGHT (Kg)					

The following information is included on the nameplate:

- Model
- Inlet / outlet Diameter
- Serial number
- Filtration degree (micron)
- Max. Working pressure (kg/cm²)
- Max. Working temperature (°C)
- Backwash valve
- Empty weight (kg)
- Operating weight (kg)
- CE Certificate

8. – INSTALLATION GUIDE

- Take precautions to prevent the filter from knocks or blows, lifting the equipment by means of the upper anchor points.
- Ensure the installation site has the minimum working pressure.
 - The discharge pipe must be large enough to generate a minimum pressure drop with a flow of 25 m³/h (110 gpm).
 - In installations with a working pressure greater than 6 bar (87 psi), it is advisable to install a ball valve in the backwashing line to adjust the backwashing flow.

NOTE



THE MINIMUM WORKING PRESSURE IS 2 BAR (29 PSI) BETWEEN THE FILTER OUTLET AND THE DRAIN VALVE.

SHOULD DRAINAGE BE REDIRECTED, THIS MAY RESULT IN BACKPRESSURE DUE TO LOAD LOSS AND HEIGHT INCREASE.

- Install the filter vertically; ensure there is sufficient space to easily access the unit for future treatment and to safely perform maintenance.
- Position the filter in accordance with the arrows indicating the direction of water flow.
- The installation of a shut-off valve in the filter inlet and outlet is recommended to insulate it from the duct. A by-pass should be installed in order to avoid power cuts during maintenance.
- A non-return valve should be installed in the outlet to avoid any possible water hammer effect on the filter.
- Electrical wiring may only be installed by an authorized electrician. See section 12.1.
- During the filter installation, avoid water splashing over the electrical components or the control panel.

9. – START-UP INSTRUCTIONS

- Check previous section instructions.
- Check the hydraulic circuit (see section 15) that provides the backwashing valve with water, making sure that:
 - The ¾" filter is clean.
 - The ball valve is open.
 - The three-way valve is set to AUTO.
- Start with the following configuration at the shut-off valves:
 - Inlet valve: OPEN.
 - Outlet valve: CLOSED.
 - By-pass (if present): CLOSED.
- Connect the filter to the power supply, set the thermal breaker and the differential to ON.
- Ensure the programmable relay is set to RUN.
- Perform a manual backwash by pressing the manual backwash button. Section 12.2 details the backwash cycle.
- Open the outlet valve.
A drop in pressure and water flow increase is produced when the system is filled. It is therefore advisable to install an outlet pressure valve to ensure that the system filling is controlled.

NOTE



SHOULD NO PRESSURE-SUSTAINING VALVE BE INSTALLED, WHILE FILLING THE SYSTEM CLOSE THE OUTLET VALVE TO ATTAIN 2 BAR (29 psi) ON THE CLEAN WATER CHAMBER PRESSURE GAUGE. ONCE THE SYSTEM IS PRESSURIZED, OPEN THE OUTLET VALVE TO OBTAIN CORRECT OPERATION.

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

NOTE

THE FILTER MAY AUTOMATICALLY START THE BACKWASH CYCLE WHEN THERE IS A PRESSURE DIFFERENTIAL OF 0.3 BAR (4.3 psi) BETWEEN THE INLET AND THE OUTLET.

NOTE

IN CASE SEVERAL FILTERS ARE WORKING IN PARALLEL WITH A COMMON CONTROL PANEL, PLEASE NOTE THAT THE FILTER WHICH CONTROLS THE CLEANING IS THE ONE WITH THE PRESSURE TRANSMITTERS / PRESSURE SWITCH INSTALLED INSIDE. PLEASE TAKE THIS INTO ACCOUNT DURING MAINTENANCE.

10. – MAINTENANCE GUIDE

- Disconnect the filter from the power supply before performing any maintenance.
- Ensure the filter has been depressurized prior to loosening the screws.
- Avoid splashes and water leaks to minimize the personal risk of slipping or electric shock, and the damage that humidity can cause to the equipment.
- After completing the procedure, reattach the cover.
- Clean the screen element with a pressure washer. If necessary, acid or other chemical products may be used. This must be done following the material instructions without placing the operator or others at risk.
- Drain the equipment when it is not used for a long time.

NOTE



Open and close the valves slowly and gradually.

11. – PREVENTIVE MAINTENANCE SCHEDULE

MAINTENANCE	PERIOD	ELEMENT	ACTION
EXTERNAL			
check operations	1000 backwash cycles	Full filter	Filter On + Manual backwash button. Check: <ul style="list-style-type: none"> • motor start-up • valve opening • Effective backwash cycle (attain $P_1 = P_2$)
anti-corrosion treatment	12 months	FMA housing (element 1)	Use anti-corrosion treatment where necessary Apply Epoxy - Polyester treatment
turret	6 months	Spindle (element 38.20)	Dismantle spindle cover (38.20) and side grille. Clean and lubricate both sides of the spindle. Use lubricant from STF-Filtros.
Rim water-tightness	6 months	Rim water-tightness (element 38.9)	Check water-tightness of element (38.9) Replace internal joints: <ul style="list-style-type: none"> • Ø45 O-ring seal x4 (element 38.8) • NI - 150 Joint 20x28x5.5 (element 38.10) • EQ-16 Quad joint (element 38.7) • Scraper 20x28x4.8/7 (element 38.6)
Pressure line	1 week	Intake filter (element 5.12)	Cleaning of intake filter and water supply micro-tubes towards backwash valve.
INTERNAL			
anti-corrosion treatment	12 months	FMA housing (element 1)	Use anti-corrosion treatment where necessary Apply Epoxy - Polyester treatment
Suction nozzles	12 months	Suction nozzle (element 49)	Check state of suction nozzles, bristles, proximity to cartridge.
Filtration cartridge	Periods of inactivity	Filtration cartridge (element 20)	Manual cleaning using high-pressure water, where necessary use acid or other chemical agents.
Joints	12 months	Internal joints <ul style="list-style-type: none"> • Element 20.1 • Element 20.3 • Element 42.3 • Element 42.5 	Check internal joints; if deteriorated, replace immediately.

When the control panel is installed with the filter, all the electrical connections between the control panel, the sensors and the actuators have already been installed and tested by the manufacturer. The standard input power supply is 208V AC 3Ph 60 Hz. Please consult with the manufacturer about alternatives.

WARNING!



IN THE ELECTRICAL BOX POWERED BY THREE-PHASE DURING STARTUP, CHECK THAT THE ROTATION OF THE MOTOR IS SUITABLE TO FILTER PROGRAMMING.

DESCRIPTION

In the control panel are the following monitoring and control elements, which can be classified as external and internal.

External Elements

- Main disconnecter.
- Colored lamps:

White	Energy
Yellow	Backwashing cycle
Red	Alarm / Fail
- Emergency stop button: its function is to provide an emergency stop manually.
- Buttons:

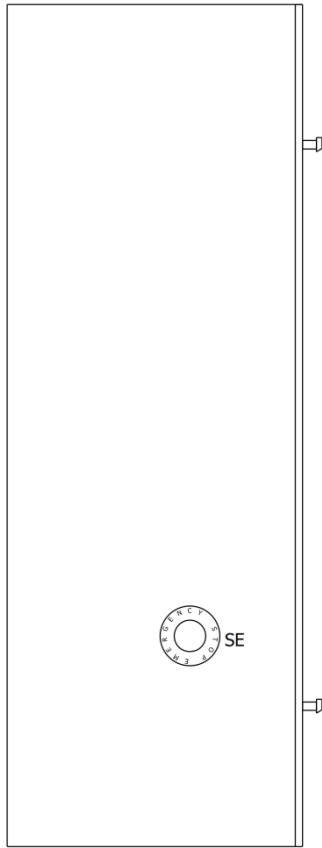
Black:	Generate a backwash cycle manually.
Blue:	Reactivate the equipment when it enters in fault status.
- Touch panel to monitor the status and performance of the filter.

Internal Elements

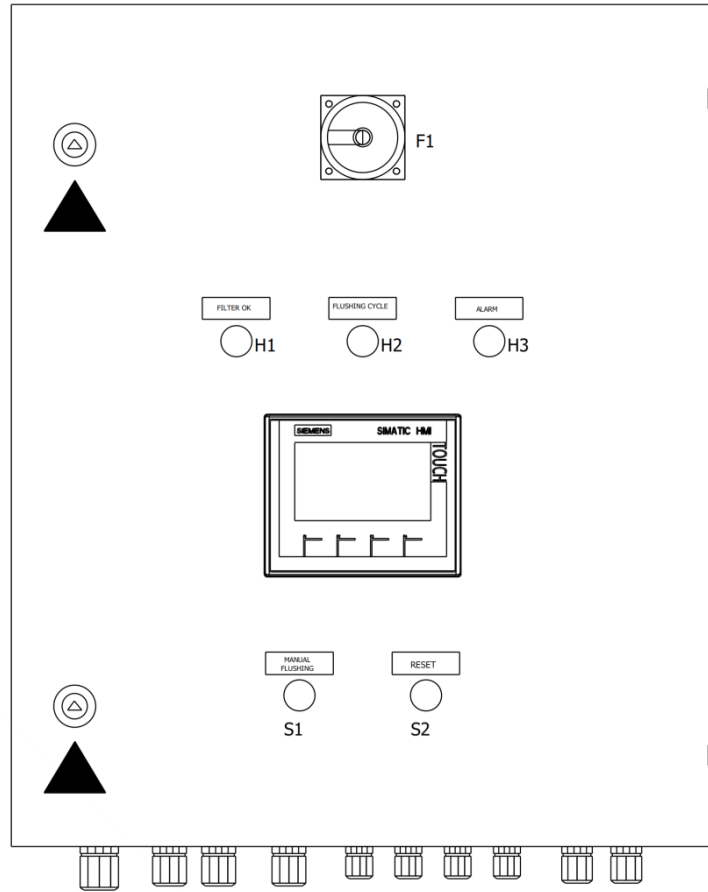
- Circuit breaker (F1 – F2)
- Power supply (T01)
- Motor circuit breaker (QM1 – QM2)
- Softstarter (U2)
- Programmer
- Connectors:
- X0 – Terminals

12. – CONTROL PANEL

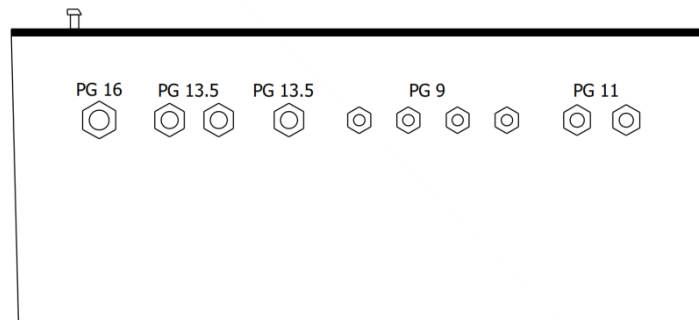
LEFT VIEW



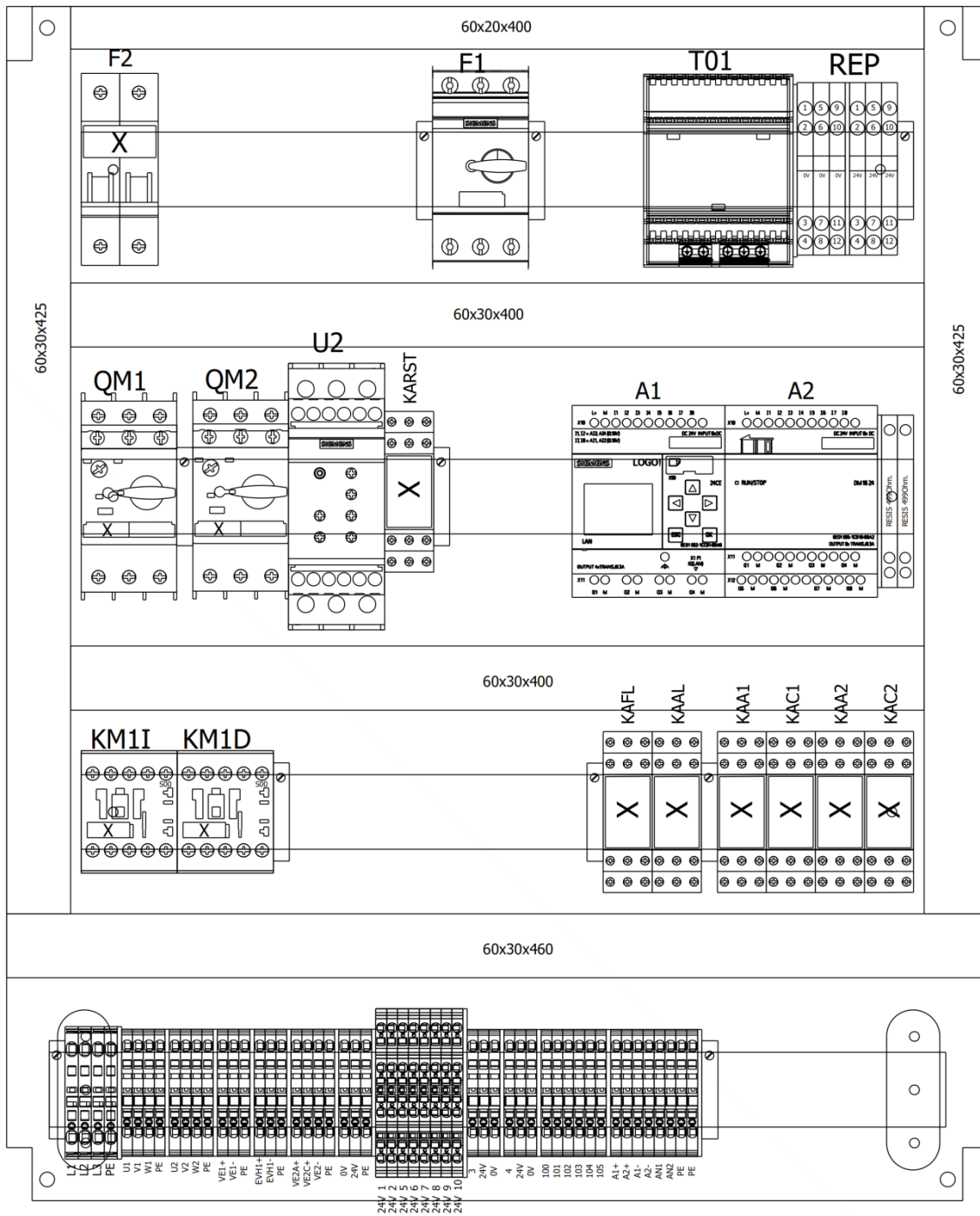
FRONT VIEW



BOTTOM VIEW



12. – CONTROL PANEL



12. – CONTROL PANEL

ELECTRICAL CONNECTIONS

¡WARNING!

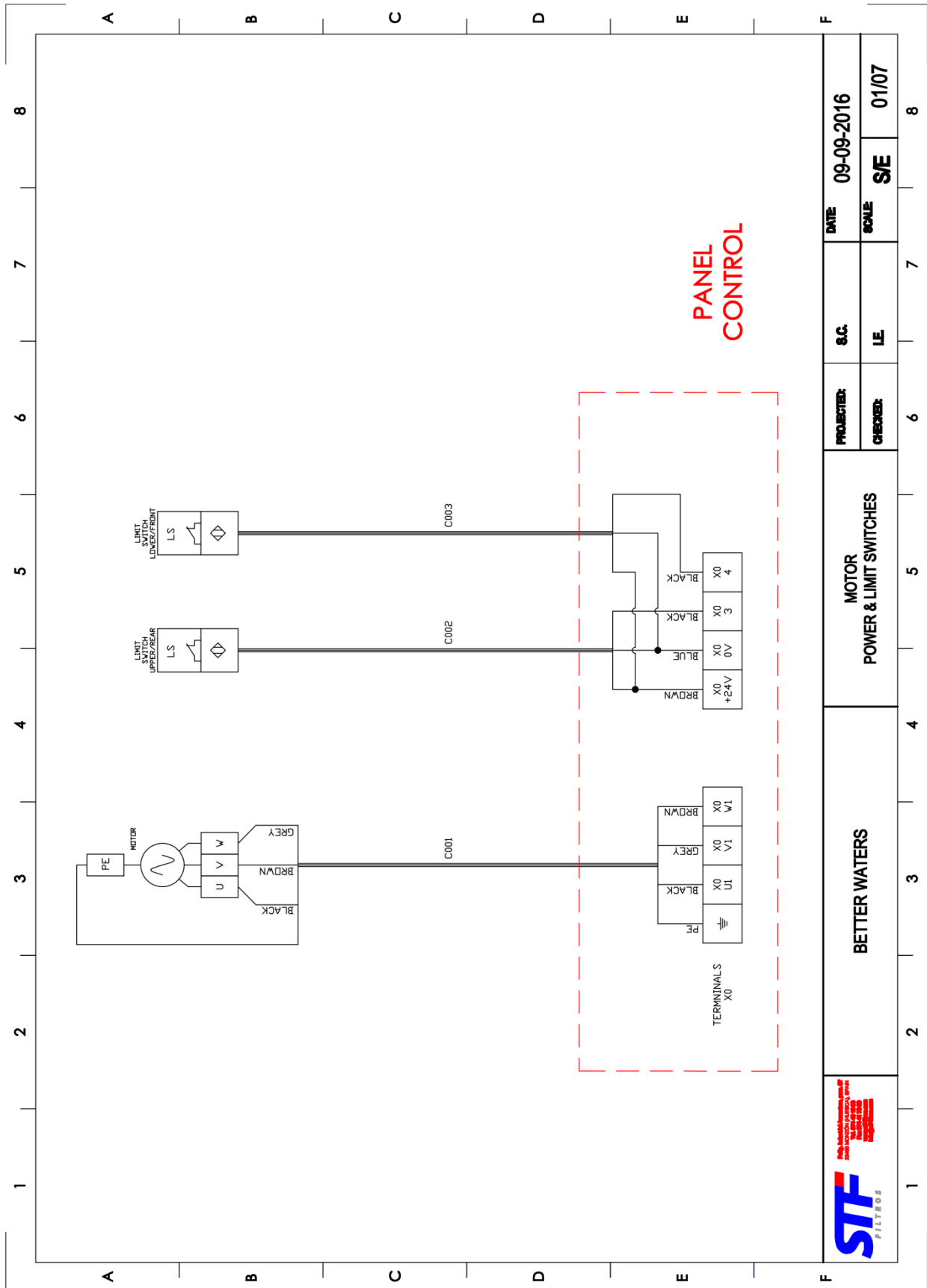


RISK OF ELECTRIC SHOCK. THE OPERATIONS MARKED WITH THIS SYMBOL MUST ONLY BE PERFORMED BY QUALIFIED PERSONNEL.

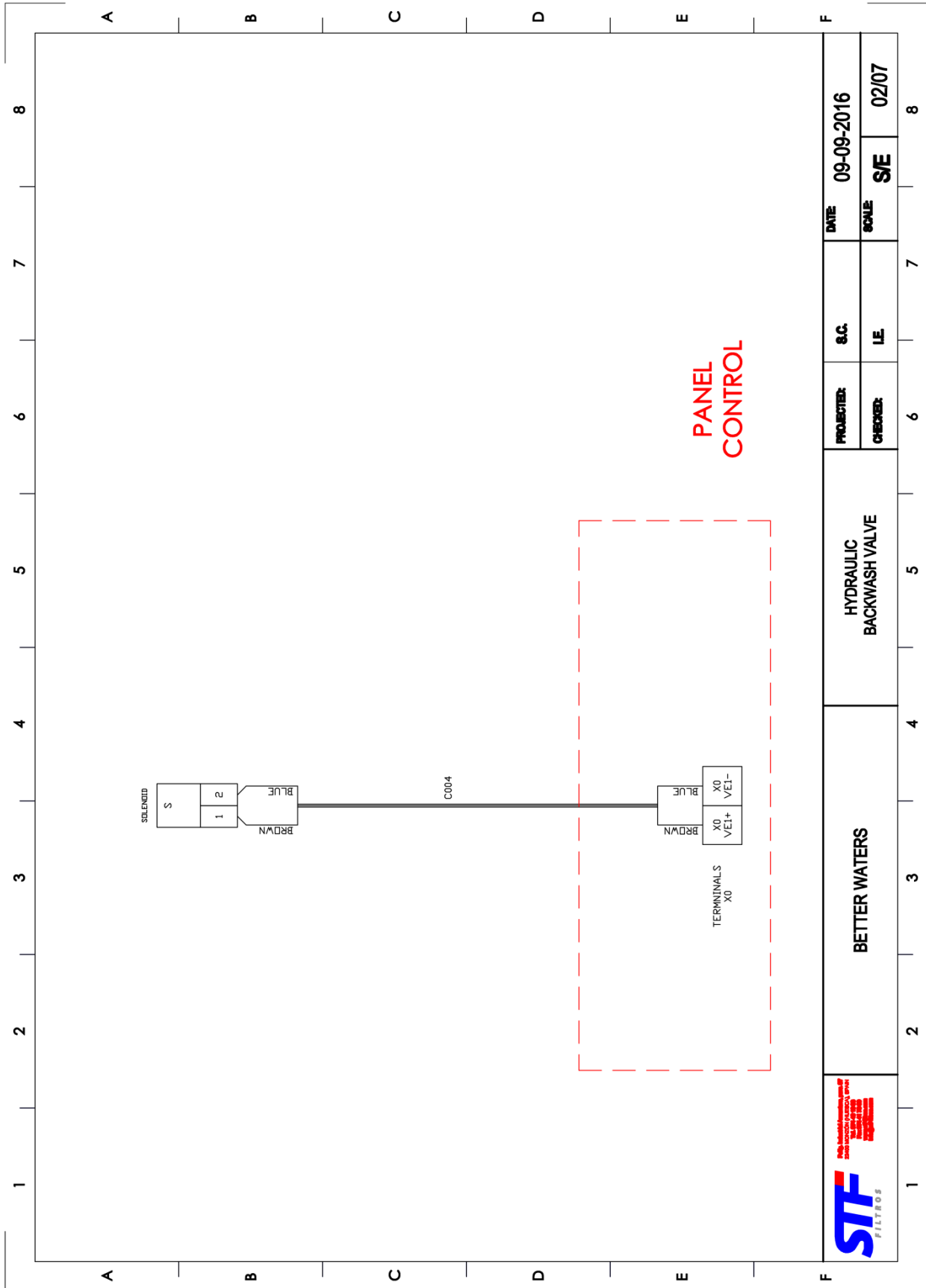
Power connection and communication connection should be at the bottom Terminal connection block, according to the following specification:
The panel control offers availability of communication with electrical connections.

Standard communication signals, differentiating between inputs and outputs:

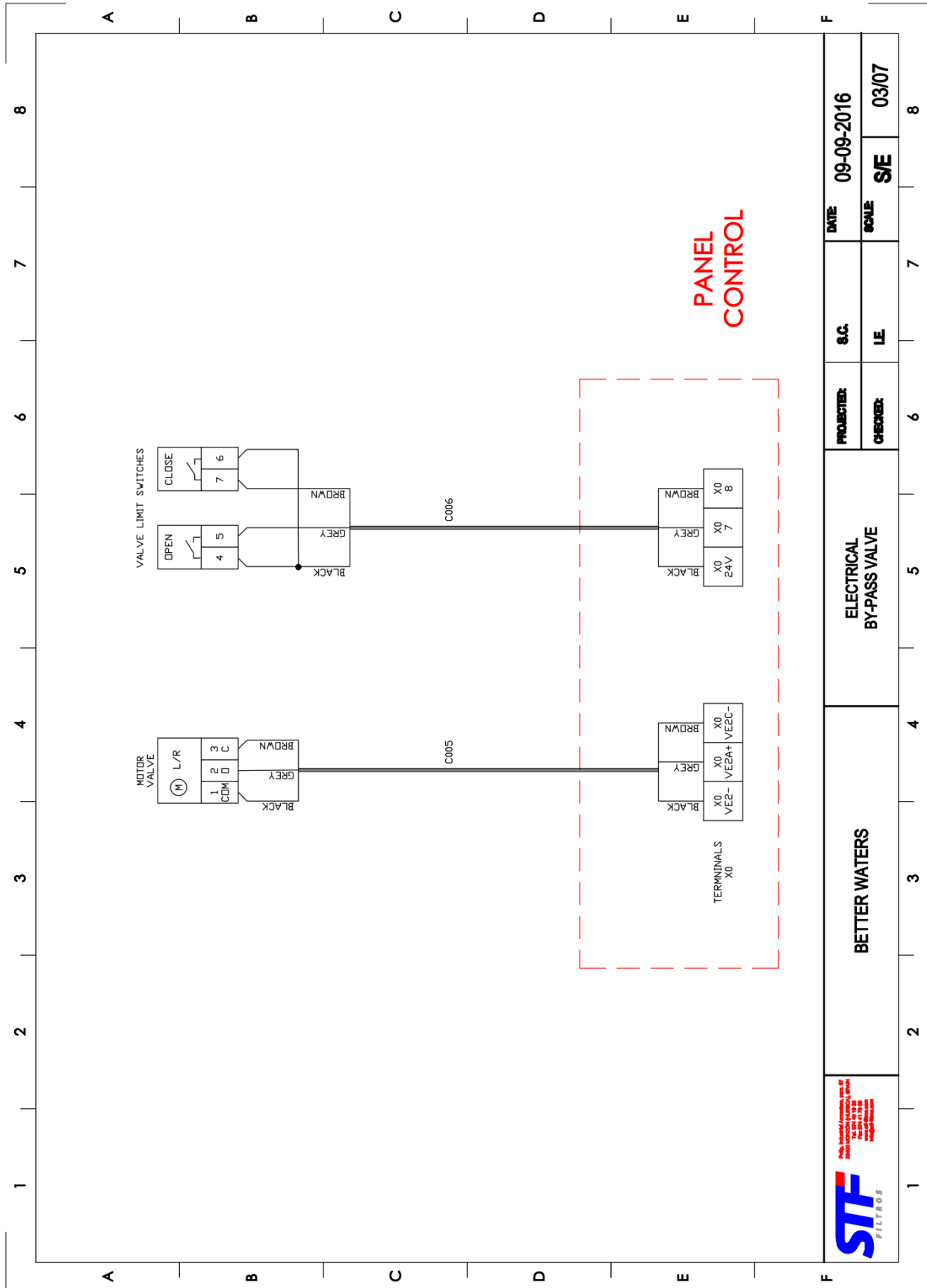
12. – CONTROL PANEL



12. – CONTROL PANEL



12. – CONTROL PANEL



STF
FILTROS

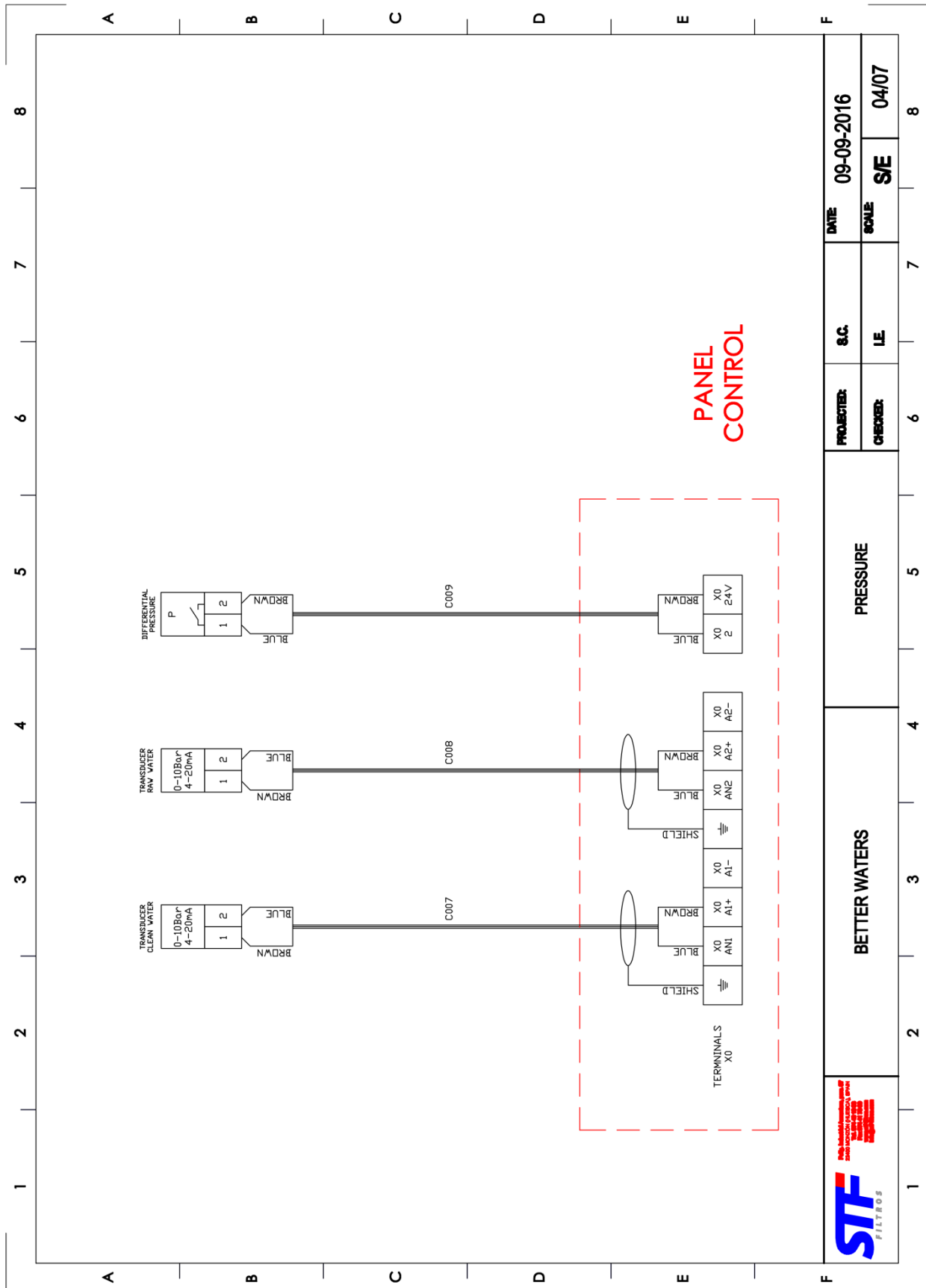
Do not connect to any other electrical system
Do not connect to any other electrical system
Do not connect to any other electrical system
Do not connect to any other electrical system

PROJECTED:		S.C.	DATE
CHECKED:	LE	SCALE	09-09-2016
		S/E	03/07

ELECTRICAL BY-PASS VALVE

BETTER WATERS

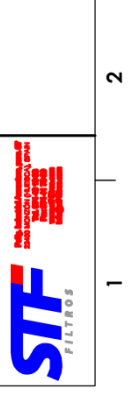
12. – CONTROL PANEL



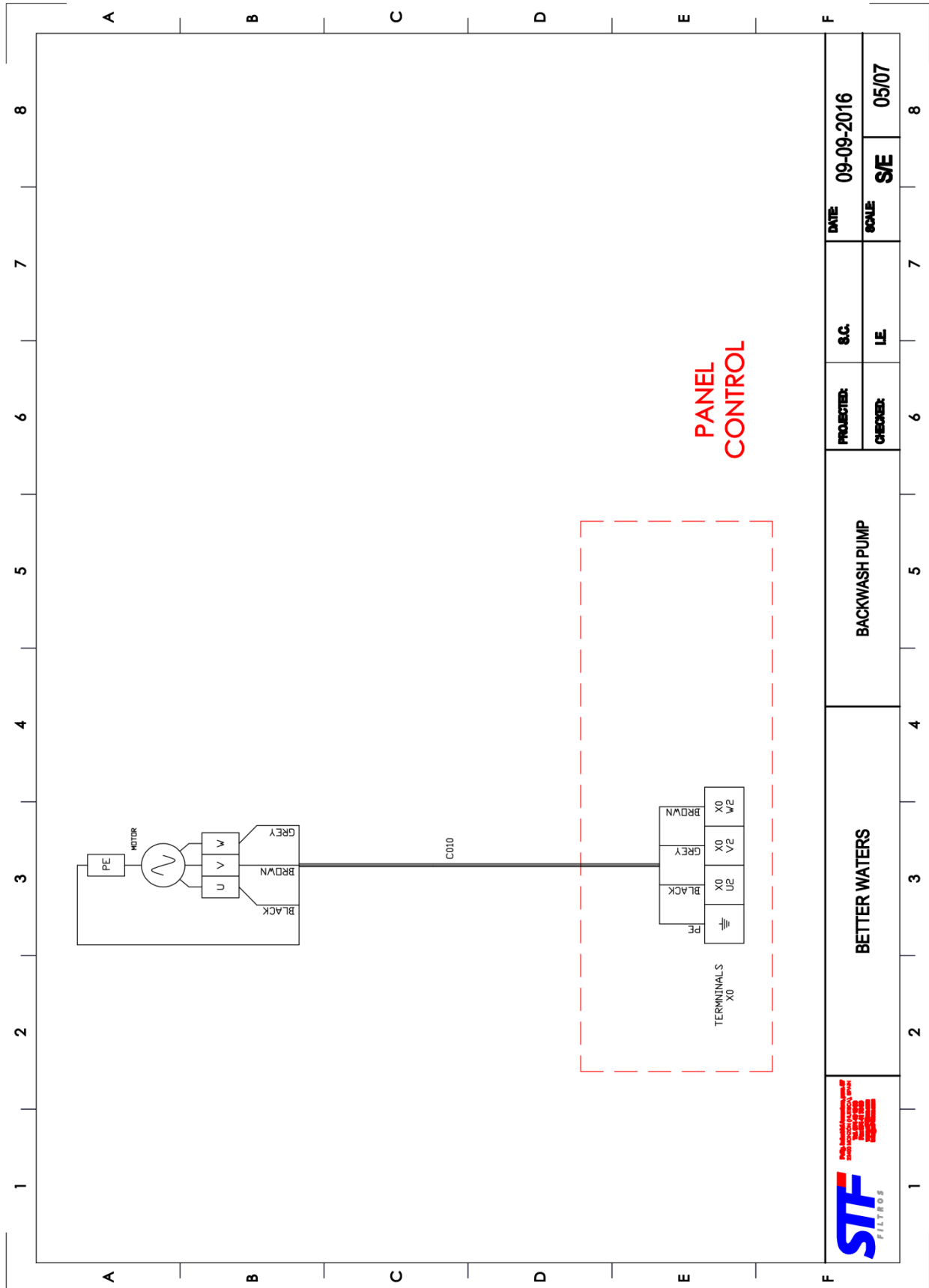
PROJECTED: S.C.		DATE: 09-09-2016
CHECKED: LE	SCALE: S/E	04/07

BETTER WATERS

PRESSURE



12. – CONTROL PANEL

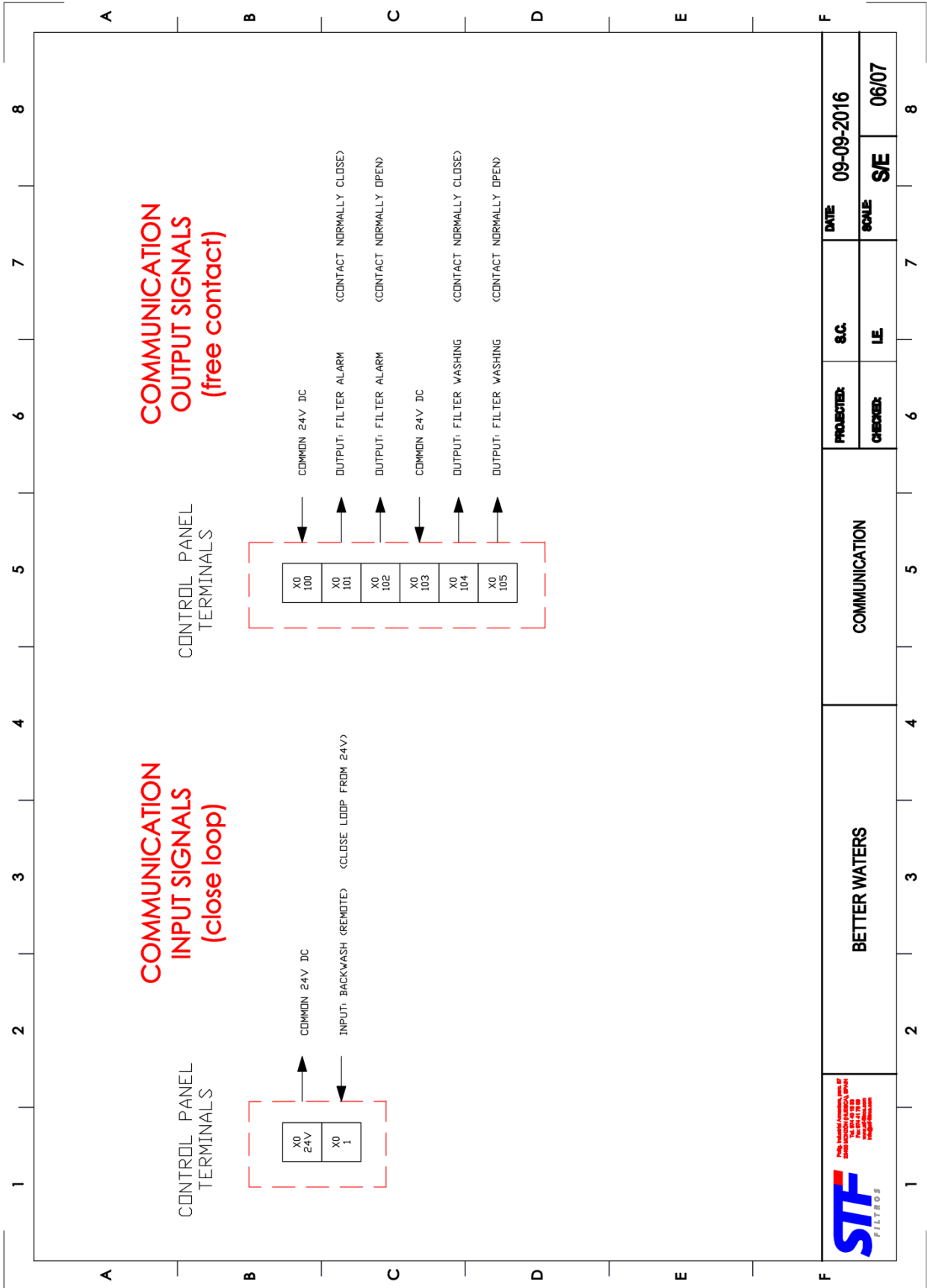


PROJECTED:	S.C.	DATE	09-09-2016
CHECKED:	IE	SCALE	S/E
			05/07


BACKWASH PUMP

BETTER WATERS





12. – CONTROL PANEL

1	2	3	4	5	6	7	8																																	
A	<table border="1"> <thead> <tr> <th>TAG</th> <th>DESCRIPTION</th> <th>LENGHT</th> </tr> </thead> <tbody> <tr> <td>C001</td> <td>WIRE 4x1,5mm²</td> <td>---</td> </tr> <tr> <td>C002</td> <td>SPECIAL 3X0,5mm²</td> <td>---</td> </tr> <tr> <td>C003</td> <td>SPECIAL 3X0,5mm²</td> <td>---</td> </tr> <tr> <td>C004</td> <td>WIRE 2x1mm²</td> <td>---</td> </tr> <tr> <td>C005</td> <td>WIRE 4x1mm²</td> <td>---</td> </tr> <tr> <td>C006</td> <td>WIRE 4x1mm²</td> <td>---</td> </tr> <tr> <td>C007</td> <td>WIRE 2x1mm²(SHIELD)</td> <td>---</td> </tr> <tr> <td>C008</td> <td>WIRE 2x1mm²(SHIELD)</td> <td>---</td> </tr> <tr> <td>C009</td> <td>WIRE 2x1mm²</td> <td>---</td> </tr> <tr> <td>C010</td> <td>WIRE 4x2,5mm²</td> <td>---</td> </tr> </tbody> </table>						TAG	DESCRIPTION	LENGHT	C001	WIRE 4x1,5mm ²	---	C002	SPECIAL 3X0,5mm ²	---	C003	SPECIAL 3X0,5mm ²	---	C004	WIRE 2x1mm ²	---	C005	WIRE 4x1mm ²	---	C006	WIRE 4x1mm ²	---	C007	WIRE 2x1mm ² (SHIELD)	---	C008	WIRE 2x1mm ² (SHIELD)	---	C009	WIRE 2x1mm ²	---	C010	WIRE 4x2,5mm ²	---	F
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C007	WIRE 2x1mm ² (SHIELD)	---																																						
C008	WIRE 2x1mm ² (SHIELD)	---																																						
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C010	WIRE 4x2,5mm ²	---																																						
				BETTER WATERS		TAGS		PROJECTED: CHECKED:	S.C. LE	DATE SCALE	09-09-2016 S/E	07/07																												
A	B	C	D	E	F	7	8																																	

12. – CONTROL PANEL

PERFORMANCE

The human machine interface (HMI) has the following screens, where filter operations are monitored. The operator can modify and change the filter performance and control status:

SCREEN 1 – START



Start screen has a general menu, appearing on all screens of the panel:

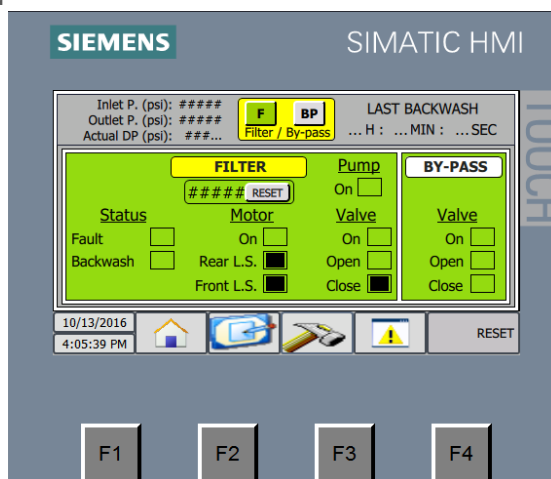
BUTTON	PROPERTY
2/2/2016 11:23:42 AM	PLC date and time
	leads directly to screen 1
	leads directly to screen 2
	leads directly to screen 3
	leads directly to screen *
RESET	Reset faults

The screen has one button, which leads directly to a window where the manufacturer information is:



12. – CONTROL PANEL

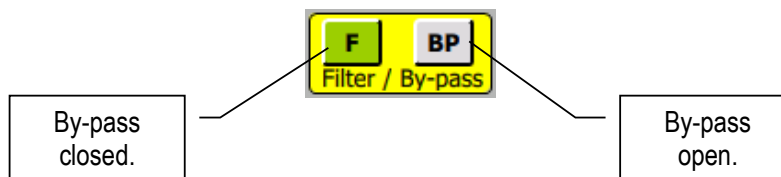
SCREEN 2 – MAIN SCREEN



This screen shows the main information for the filter; below are details:

- Upper area shows:
 - Pressures in bar: inlet, outlet and DP.
 - Time since last backwash cycle (hours : minutes : seconds)

The next push buttons enable choosing the status of the by-pass valve. The button turns to green when the mode is selected.



- Right area shows the status of the by-pass valve:
 - On: Order to open by-pass valve.
 - Open: Signal from open limit switch.
 - Close: Signal from close limit switch.
- Left area shows the status of the filter:
 - Status
 - Fault: Fault of the filter.
 - Backwash: Flushing cycle of the filter.
 - Motors
 - On: Order to turn on motor.
 - Upper LS: Signal from limit switch close to the motor.
 - Lower LS: Signal from limit switch close to the vessel.
 - Drain valve:
 - On: Order to open.
 - Open: Signal from open limit switch.
 - Close: Signal from close limit switch.
 - Backwash counter:
 - This screen shows the number of backwash cycles done by the filter. This counter can be reset by the RESET button.

12. – CONTROL PANEL

SCREEN 3 – SYSTEM PARAMETERS

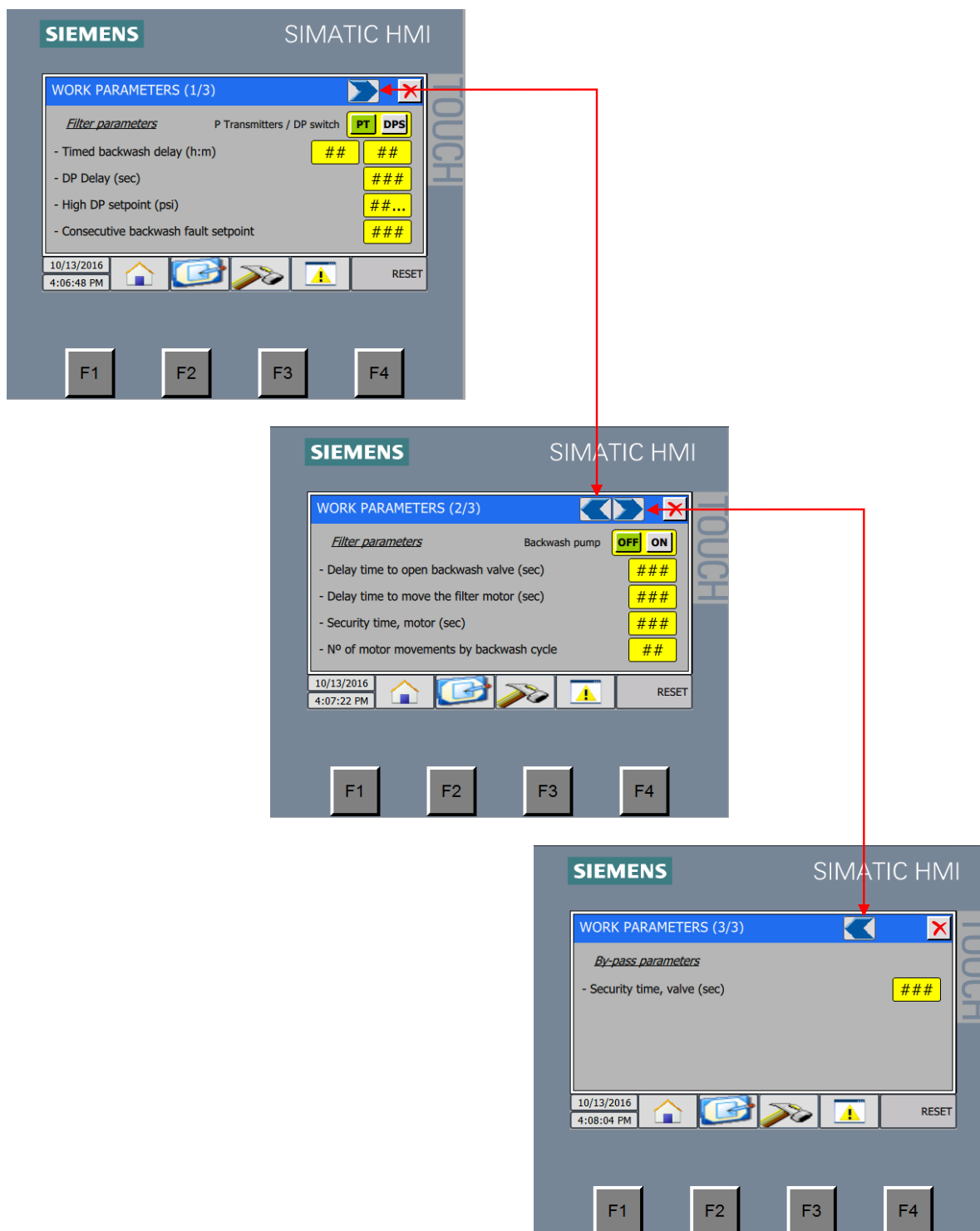


This screen is the menu for the system parameters; it has the following push buttons:

BUTTON	PROPERTY
WORK PARAMETERS	leads directly to screen 4
WORK PARAMETERS	leads directly to screen 5

12. – CONTROL PANEL

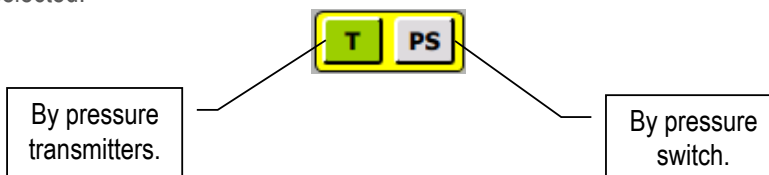
SCREEN 4 – WORK PARAMETERS



This screen has three windows where the following parameters are shown:

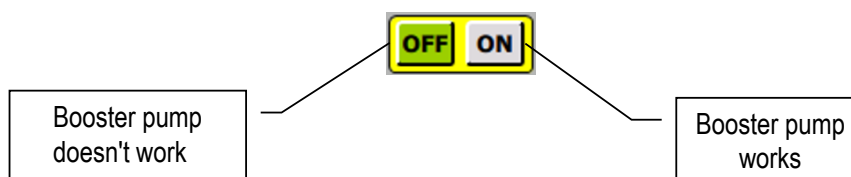
12. – CONTROL PANEL

The following push buttons allow setting of **high pressure differential** for flushing. The button turns green when the mode is selected.



- Available set points of the filter:
 - Timed backwash delay on hours and minutes.
 - Differential pressure delay, on seconds.
 - High differential pressure set point, on bar.
 - Consecutive backwash fault set point.
 - If the backwash cycle has been completed and the pressure differential still is higher than the set point, consecutive backwash counter will plus one. If the consecutive backwash counter reaches the CONSECUTIVE BACKWASH SETPOINT, the general fault will appear, and the by-pass valve will open
 - Allowable time for the filter to travel between the limit switches..
 - Number of times the cleaning system can traverse the distance between limit switches within one backwash cycle.
 - Allowable time to open the by-pass valve.

The **booster pump** will be available or not in order with the next configuration:



- Available set points of the booster pump:
 - Delay time to open backwash valve fully from the time booster pump was working.
 - Delay time to initiate the cleaning system from the time booster pump was working.

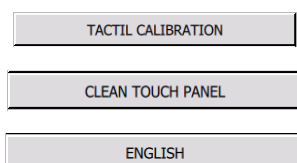
12. – CONTROL PANEL

SCREEN 5 – SCREEN PARAMETERS



This screen shows the different configuration services that are offered through the touch panel.

BUTTON



PROPERTY

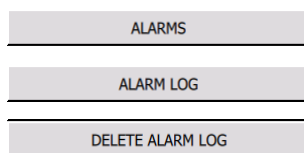
Allows panel calibration
30 sec. to clean the touch panel
Allows changing the language

SCREEN 6 – SCREEN PARAMETERS



This screen is the menu for the alarms; it has the next push buttons.

BUTTON

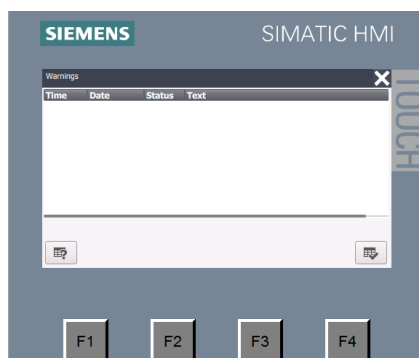


PROPERTY

leads directly to screen 7
leads directly to screen 8
allows delete the alarm log

12. – CONTROL PANEL

SCREEN 7 – ALARMS



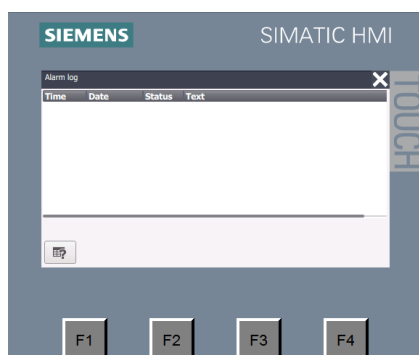
On the ALARMS screen appear all current alarms or warnings. Using the arrow keys it is possible to move the list of warnings.

To confirm one alarm or warning touch the alarm indication and press the “!” button.

There are four possible symbols next to an alarm indication:

- E: It means that the alarm has appeared.
- ES: The alarm appeared but it has already been corrected.
- ESA: The alarm has been corrected and checked by the operator with the “!” button. It passes to the ALARM LOG list.
- EA: The alarm has not been corrected but it has been checked. Once the alarm is corrected it will pass directly to the history because it has already been checked.

SCREEN 8 – ALARM LOG



The alarms that have been resolved and checked pass to the ALARM LOG screen. It is recommended to delete this list frequently in order to monitor the last alarms that have occurred at the installation.

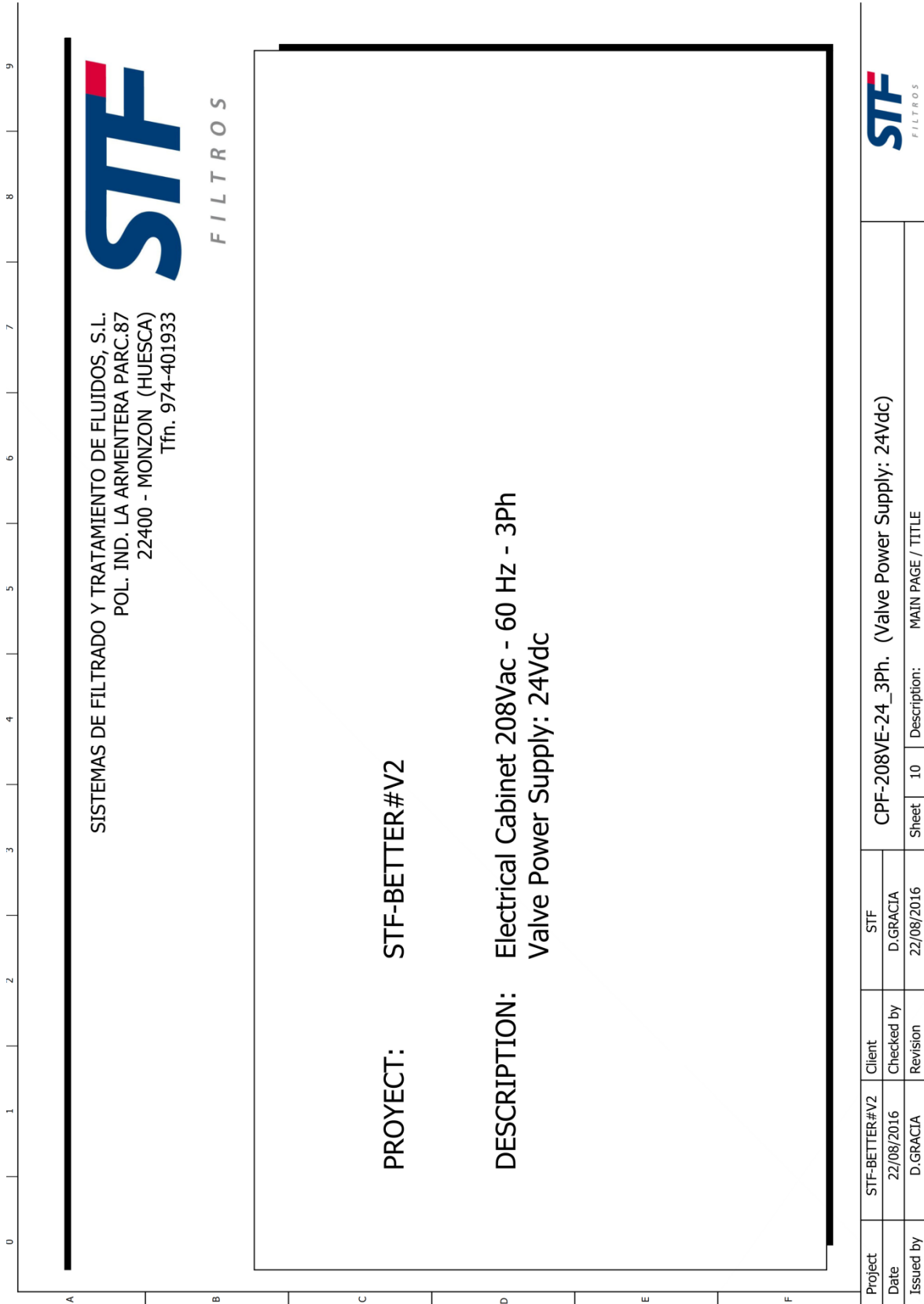
WARNINGS AND ALARMS

ALARM	CAUSE
Emergency Stop Switch	The operator pushes the emergency stop switch.
Consecutive Backwash fault	The filter station makes 10 backwash cycles consecutives (setpoint standard for our screen filters) (*) (**)
Circuit Breaker Fault	Motor circuit breaker was tripped.
Limit Switch Fault	If the motor doesn't reach the upper limit switch since the run order within the safety time, the fault will appear. If the motor doesn't reach the lower limit switch since the run order within a safety time, the fault will appear.
By-pass valve fault	If the valve doesn't reach the logical limit switch since the order within a safety time, the fault will appear.

(*) ONE CONSECUTIVE BACKWASH CYCLE is when the differential pressure is higher than the set point on the previous backwash cycle.

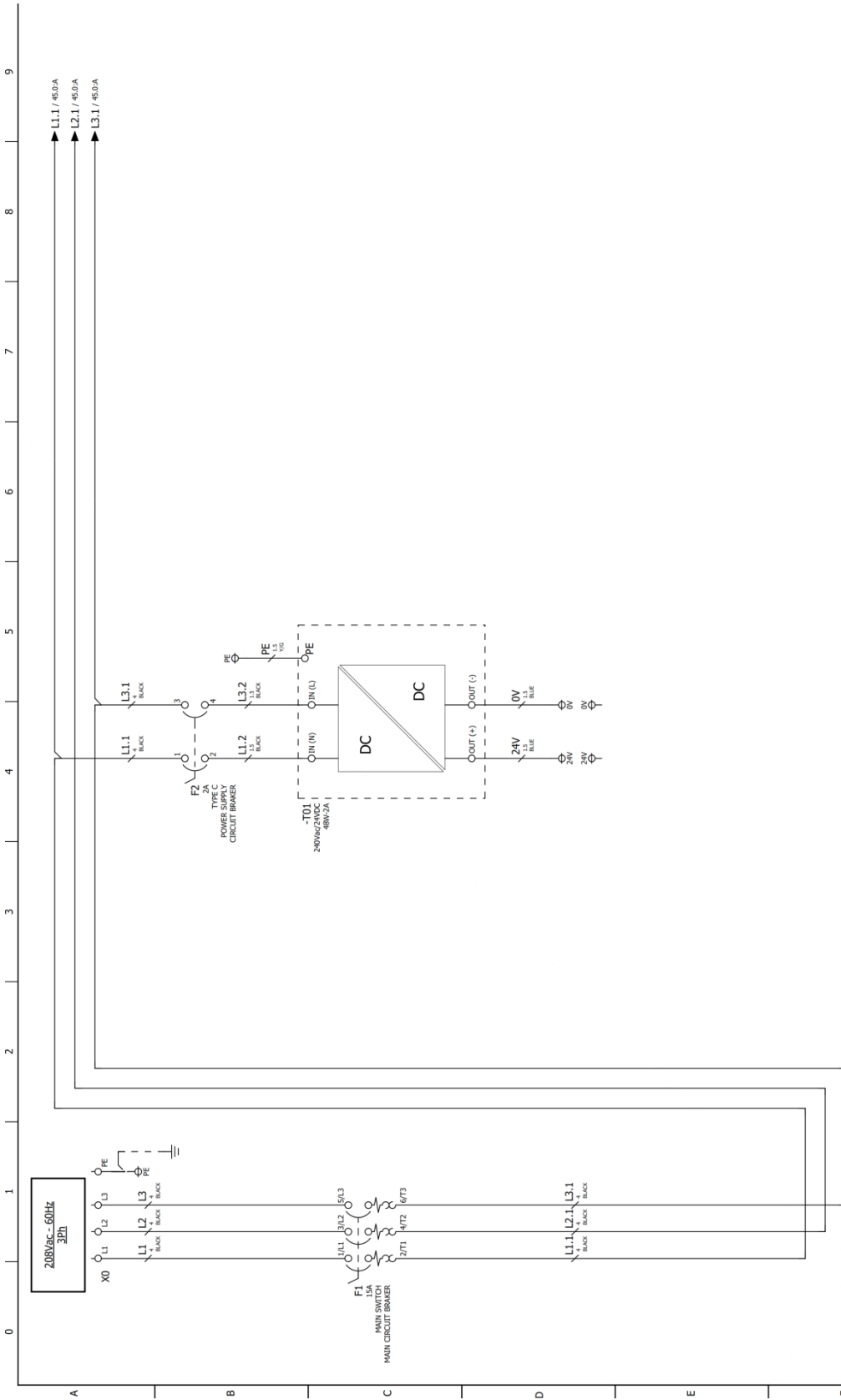
(**) If the filter has this fault, the by-pass valve will be opened automatically.

ELECTRICAL DIAGRAM



Features Sheet			
ENCLOSURE		<p>TRADE MARK - MODEL: =====</p> <p>CAHORS / ARINTER 2</p> <p>SIZE: =====</p> <p>600x500x200</p> <p>TECHNICAL FEATURES: =====</p> <ul style="list-style-type: none"> • Polyester Enclosures reinforced with fiberglass, molded hot, RAL 7035 gray color. • Degree of protection IP66 according to EN 60529 and IEC 60529. • Double insulation according to UNE-EN 60439-1 and IEC 60439-1. • High mechanical impact resistance IK10 according to EN 50102 (IK07 for enclosures with transparent door). • High resistance to corrosion and chemical and atmospheric agents. • Resistant to 70 ° C in continuous operation (peak temperatures up to 150 ° C). • Material non-hygroscopic (no water absorption). • Self-extinguishing and halogen-free. 	
ELECTRICAL INFORMATION		<p>POWER SUPPLY -- 208Vac / 60Hz</p> <p>CONTROL SUPPLY -- 24Vdc</p>	
COLORS CODE		<p>PHASE -- BLACK</p> <p>NEUTRAL -- BLUE</p> <p>24Vdc -- BLUE</p> <p>PE -- YELLOW/GREEN</p>	
MINIMUM CROSS SEC.		<p>208Vac -- 2,5mm</p> <p>24Vdc -- 1mm</p>	
Project	STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA
Issued by	D.GRACIA	Revision	22/08/2016
		Sheet	30
		Description:	TECHNICAL FEATURES
		<p>CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)</p>	

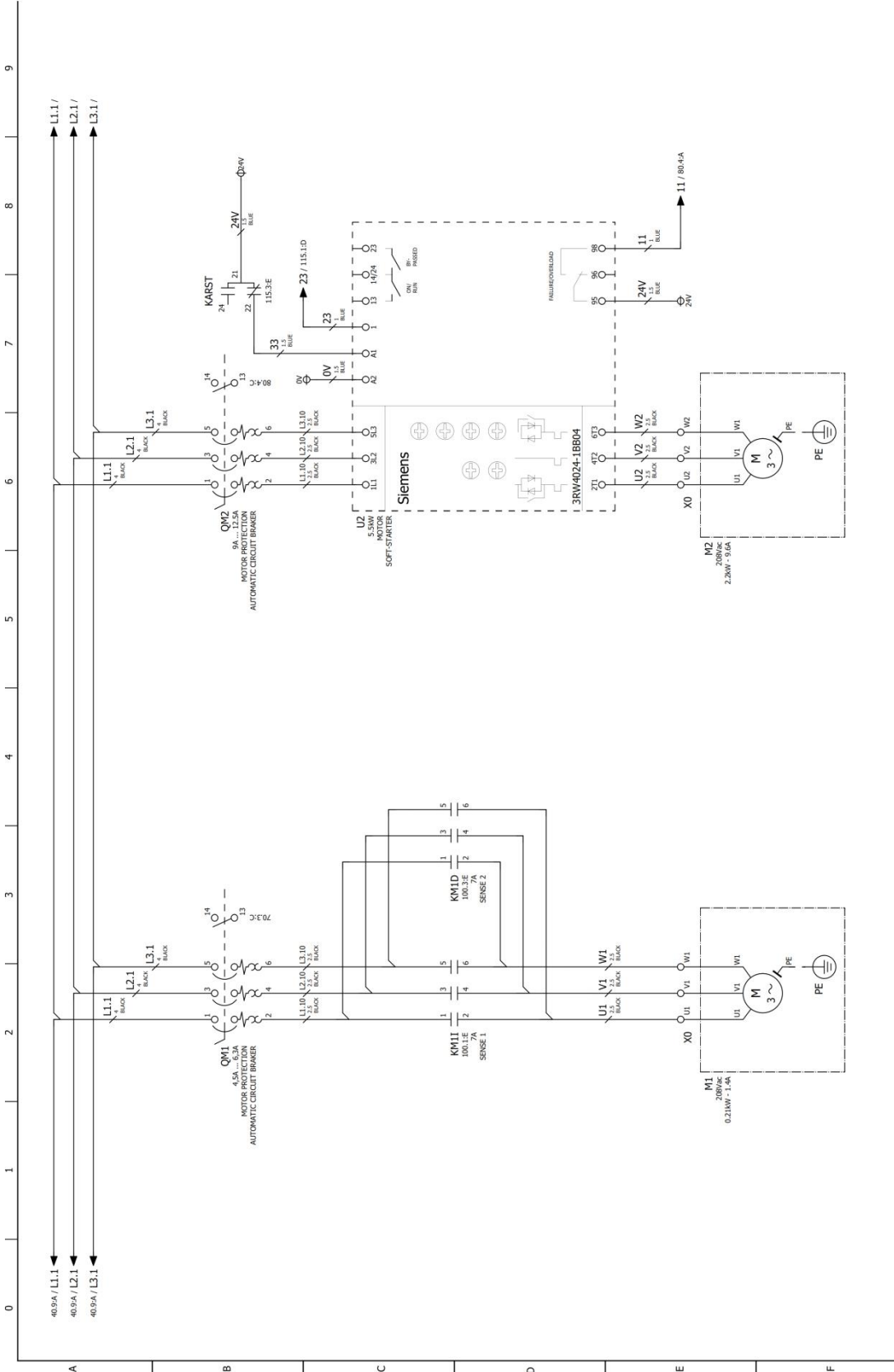
12. – CONTROL PANEL



Project	STF-BETTER#V2	Client	STF	CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)	
Date	22/08/2016	Checked by	D.GRACIA	Sheet	40
Issued by	D.GRACIA	Revision	22/08/2016	Description:	MAIN POWER SUPPLY & 24Vdc POWER SUPPLY

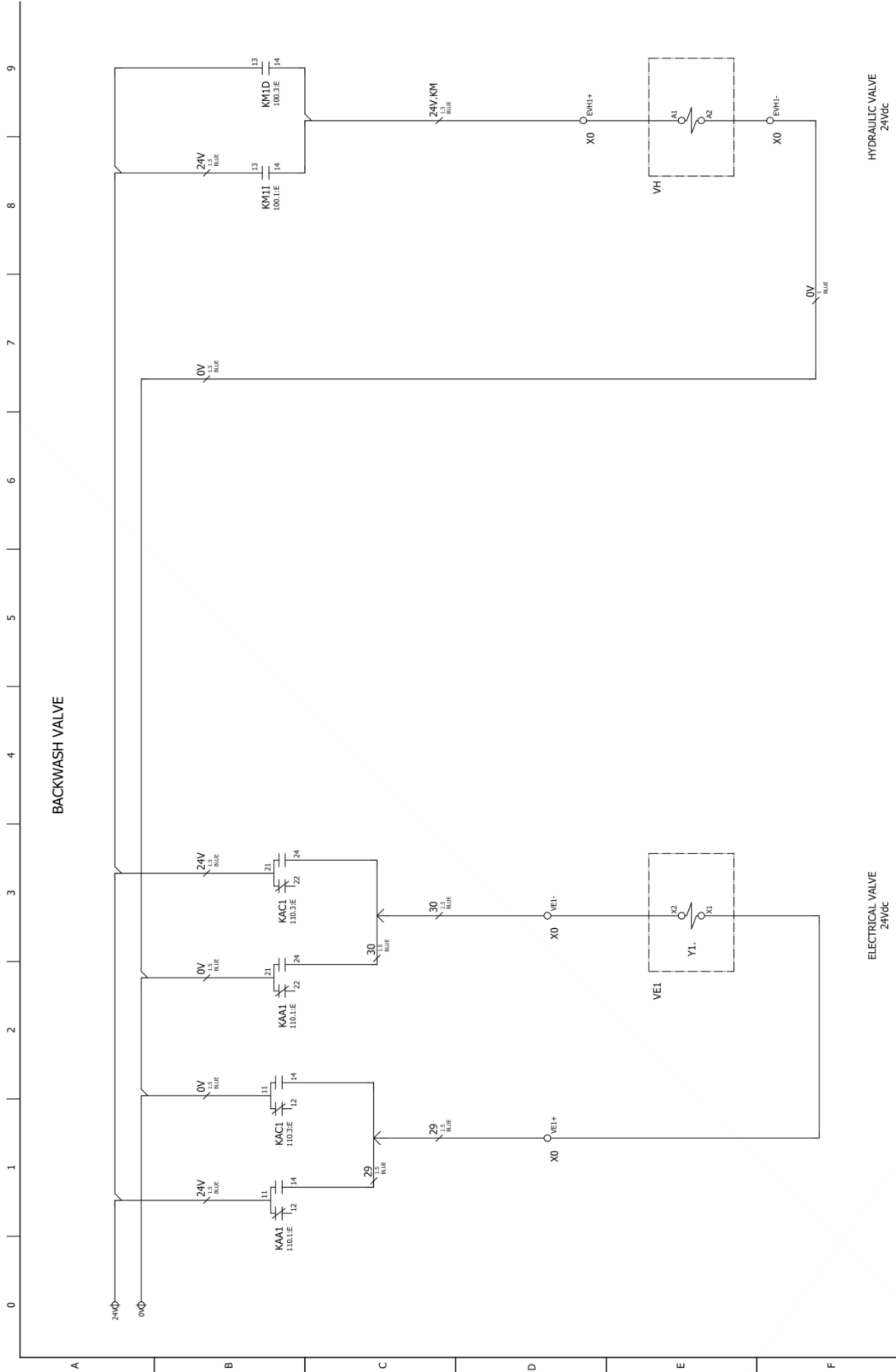


12. – CONTROL PANEL



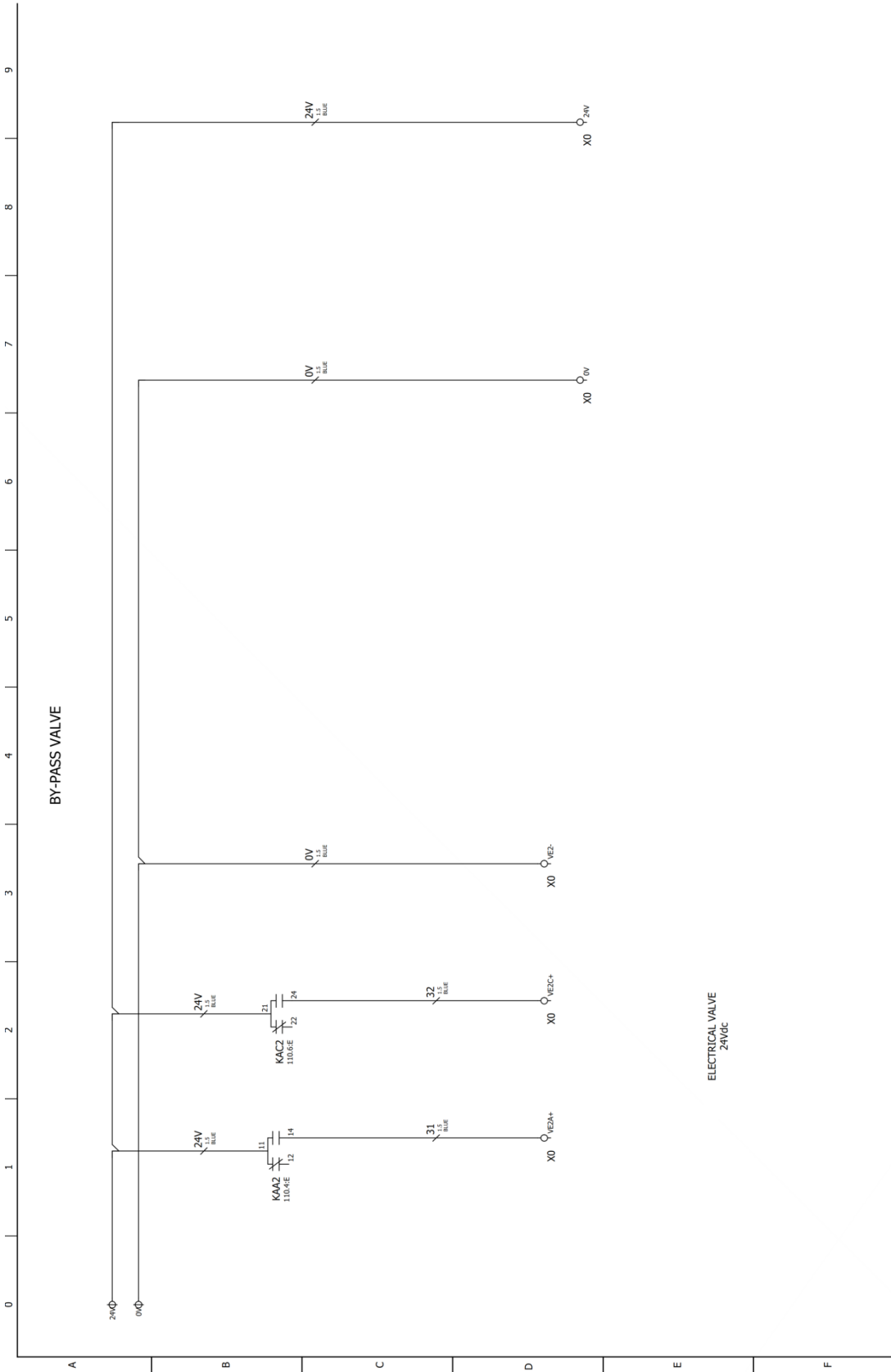
Project	STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA
Issued by	D.GRACIA	Revision	22/08/2016
Sheet		45	Description: PUMP 1 & PUMP 2 SUPPLY
CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)			

12. – CONTROL PANEL



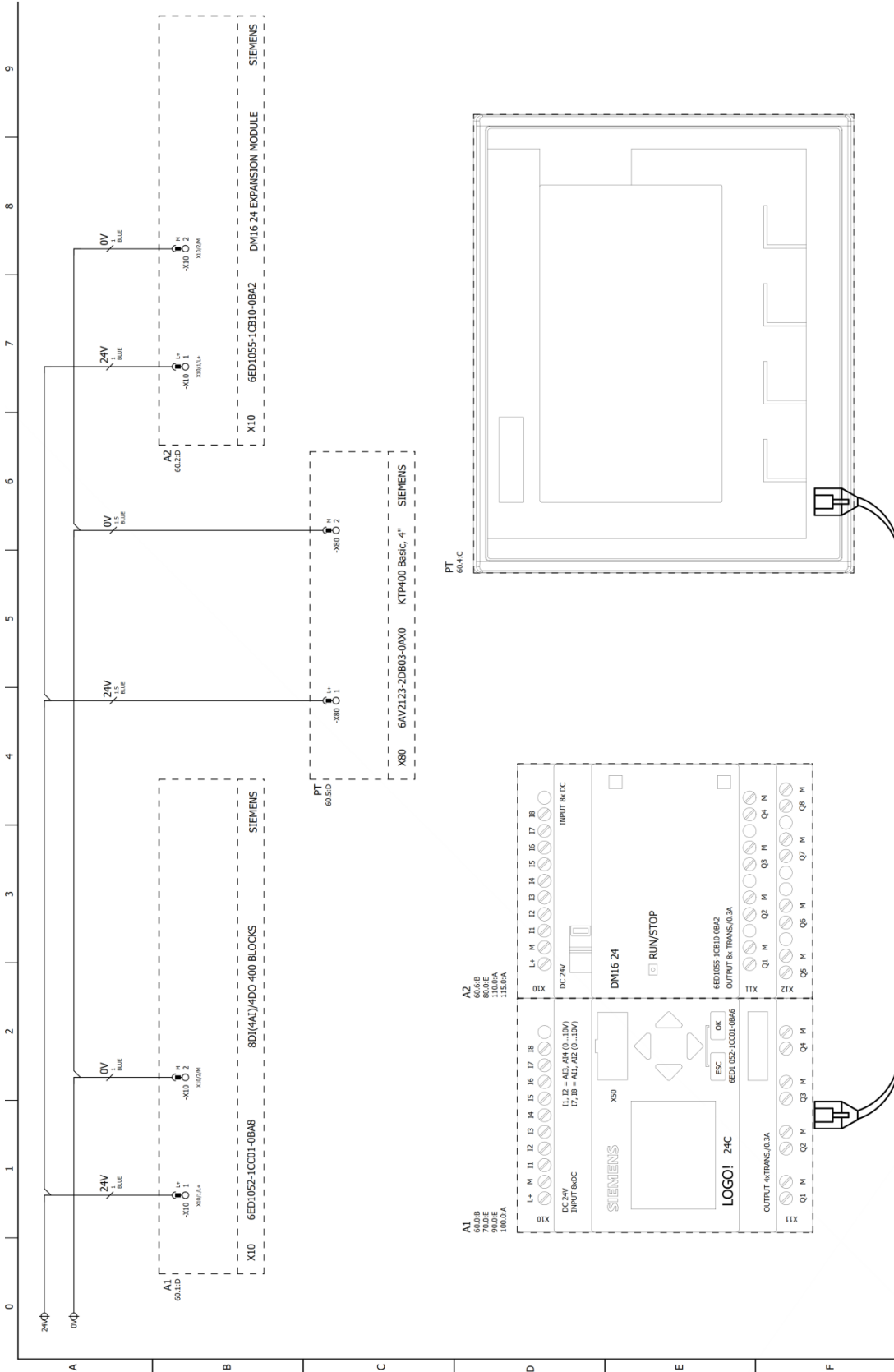
Project		STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA	
Issued by	D.GRACIA	Revision	22/08/2016	
Sheet			50.a	Description: BACKWASH VALVE SUPPLY
HYDRAULIC VALVE 24Vdc				
ELECTRICAL VALVE 24Vdc				
CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)				

12. – CONTROL PANEL



Project	STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA
Issued by	D.GRACIA	Revision	22/08/2016
CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)		Sheet	50.b
		Description:	BY-PASS VALVE SUPPLY

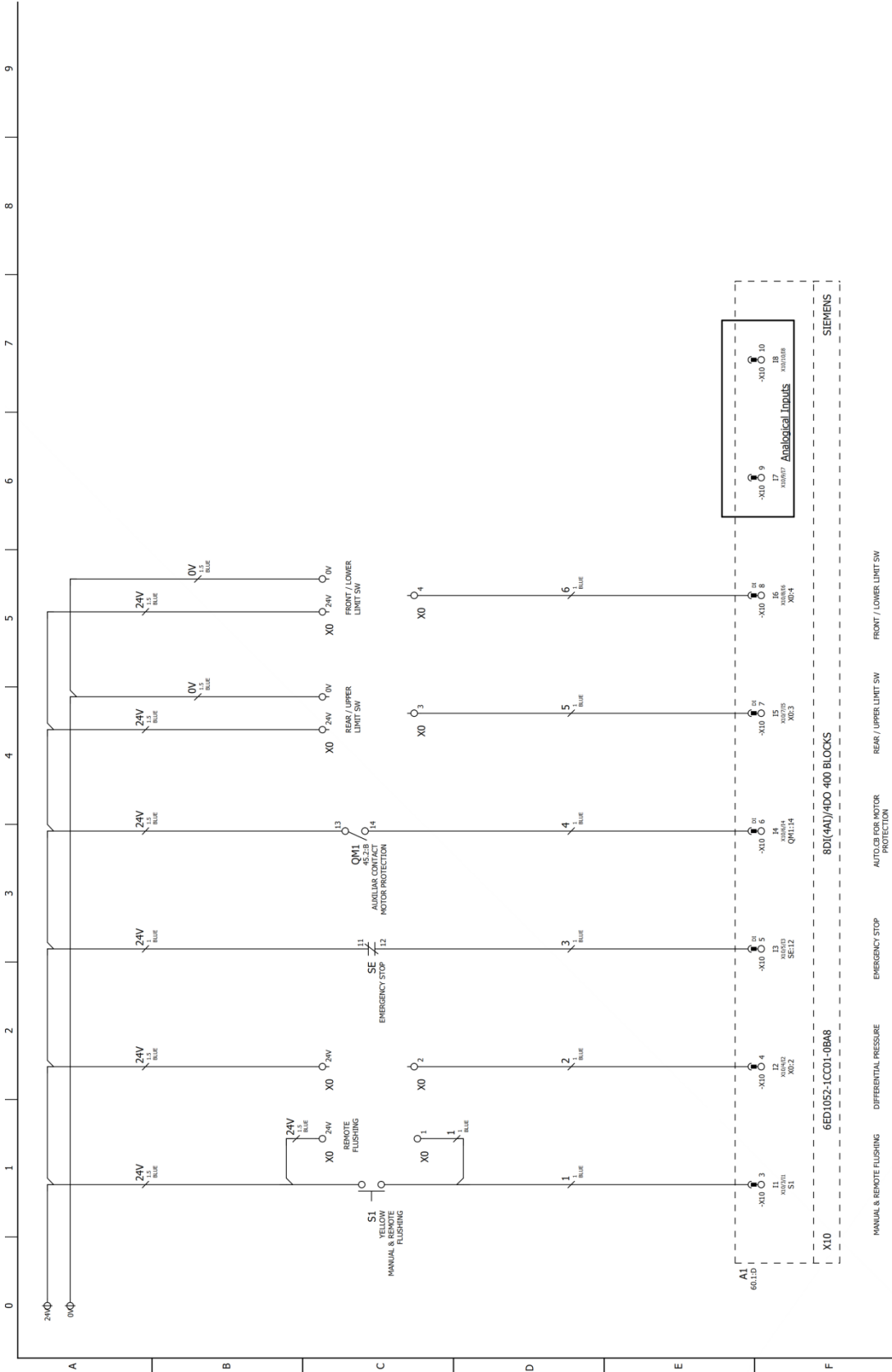
12. – CONTROL PANEL



Project	STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA
Issued by	D.GRACIA	Revision	22/08/2016
		Sheet	60
		Description:	PLC SUPPLY
CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)			

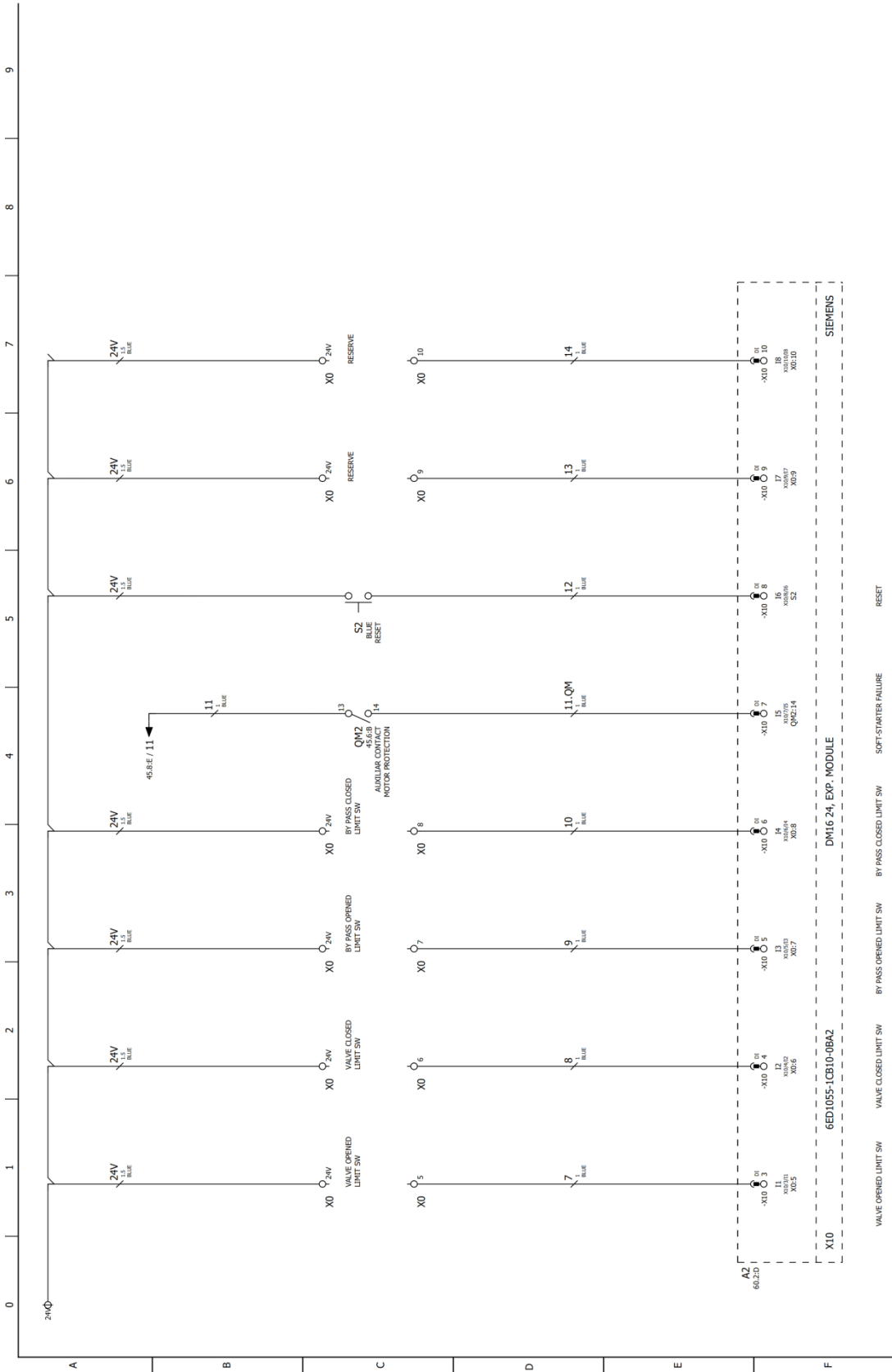


12. – CONTROL PANEL



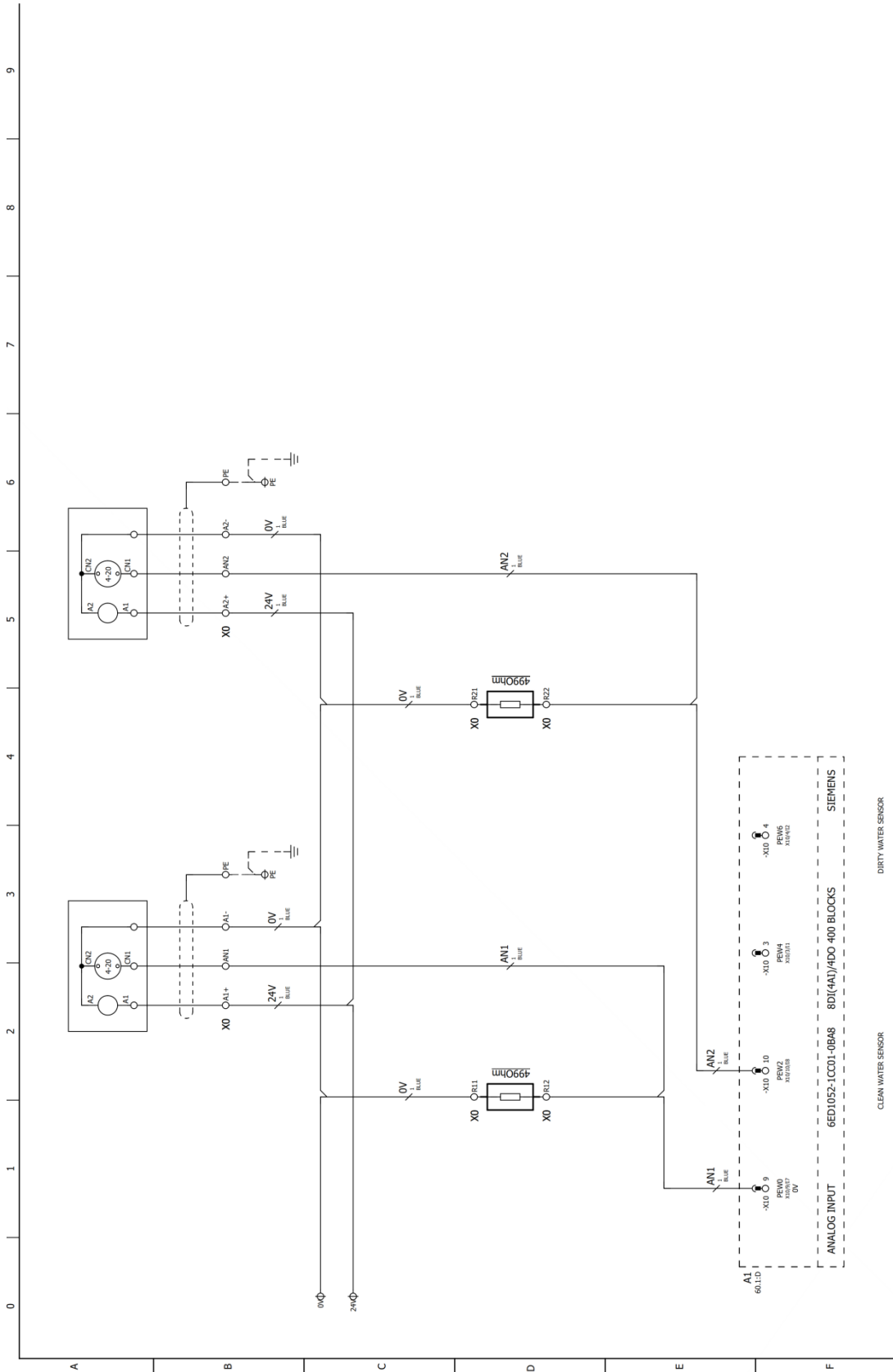
Project	STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA
Issued by	D.GRACIA	Revision	22/08/2016
Sheet		70	Description: DIGITAL INPUTS (1/2)

12. – CONTROL PANEL



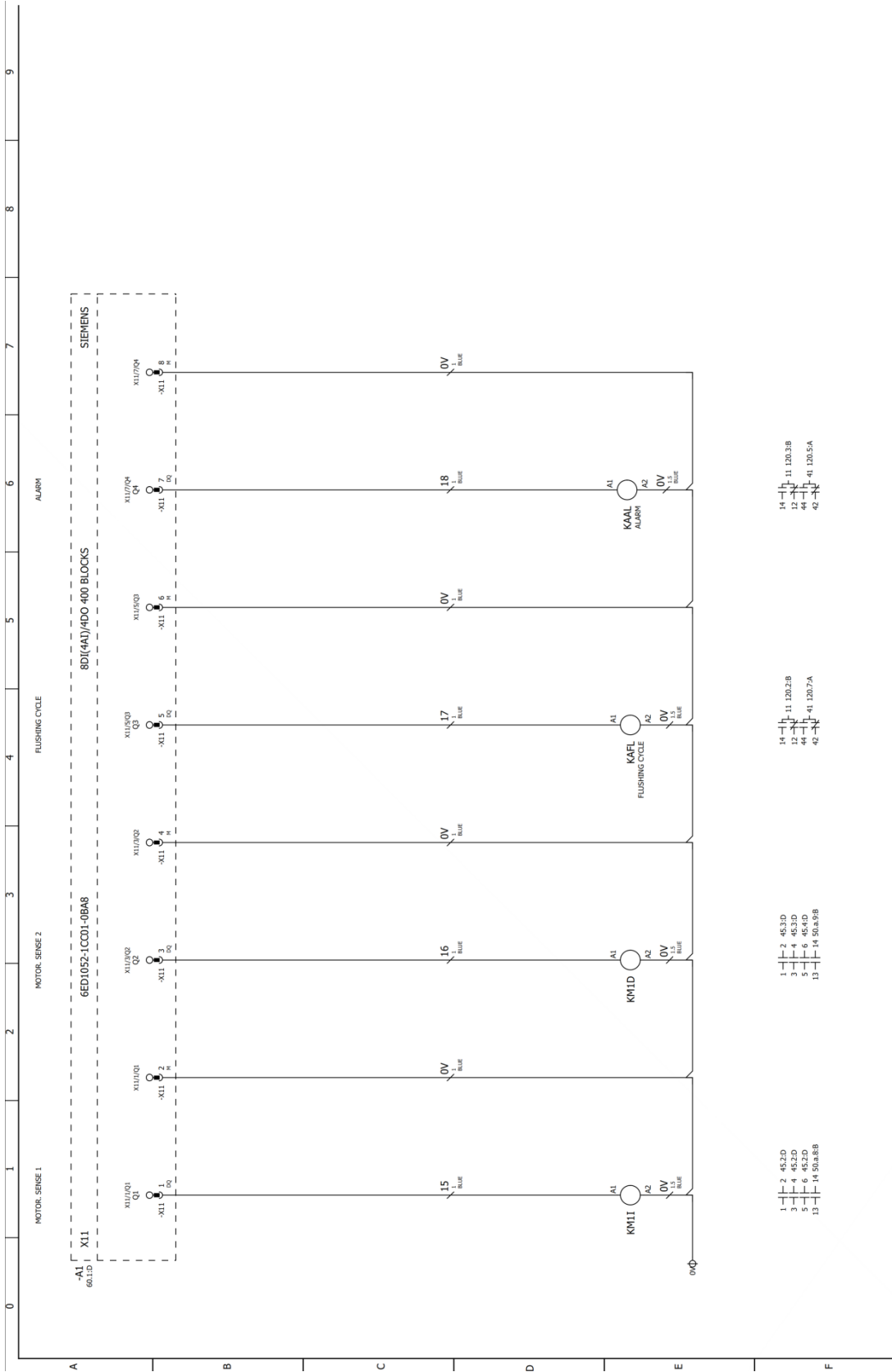
Project		STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA	
Issued by	D.GRACIA	Revision	22/08/2016	
Sheet			80	Description:
CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)			DIGITAL INPUTS (2/2)	





Project	STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA
Issued by	D.GRACIA	Revision	22/08/2016
		Sheet	90
		Description:	ANALOGICAL INPUTS (1/1)
CLEAN WATER SENSOR DIRTY WATER SENSOR			
CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)			

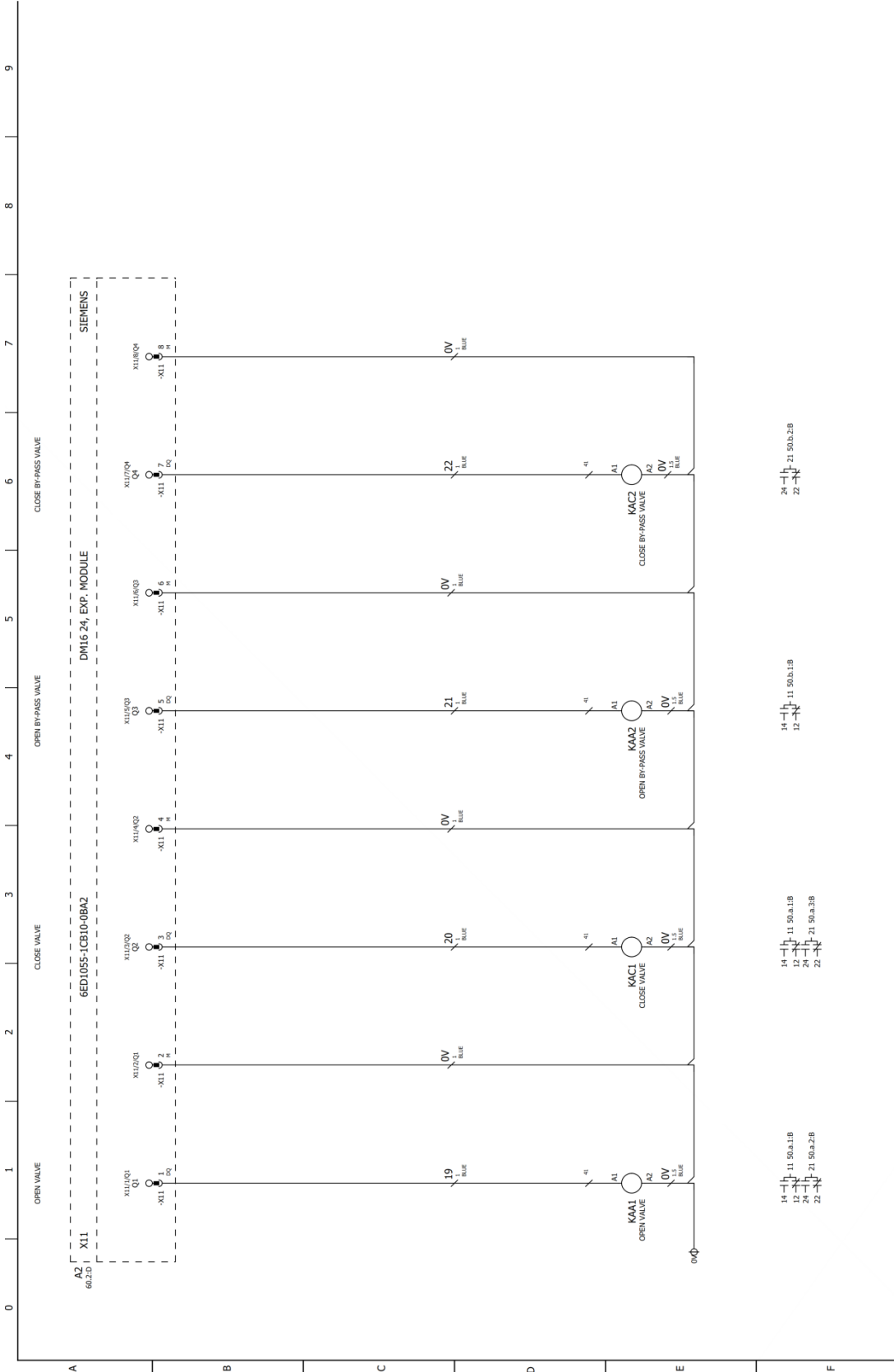
12. – CONTROL PANEL



Project	STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA
Issued by	D.GRACIA	Revision	22/08/2016
Sheet		100	Description: DIGITAL OUTPUTS (1/3)
CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)			



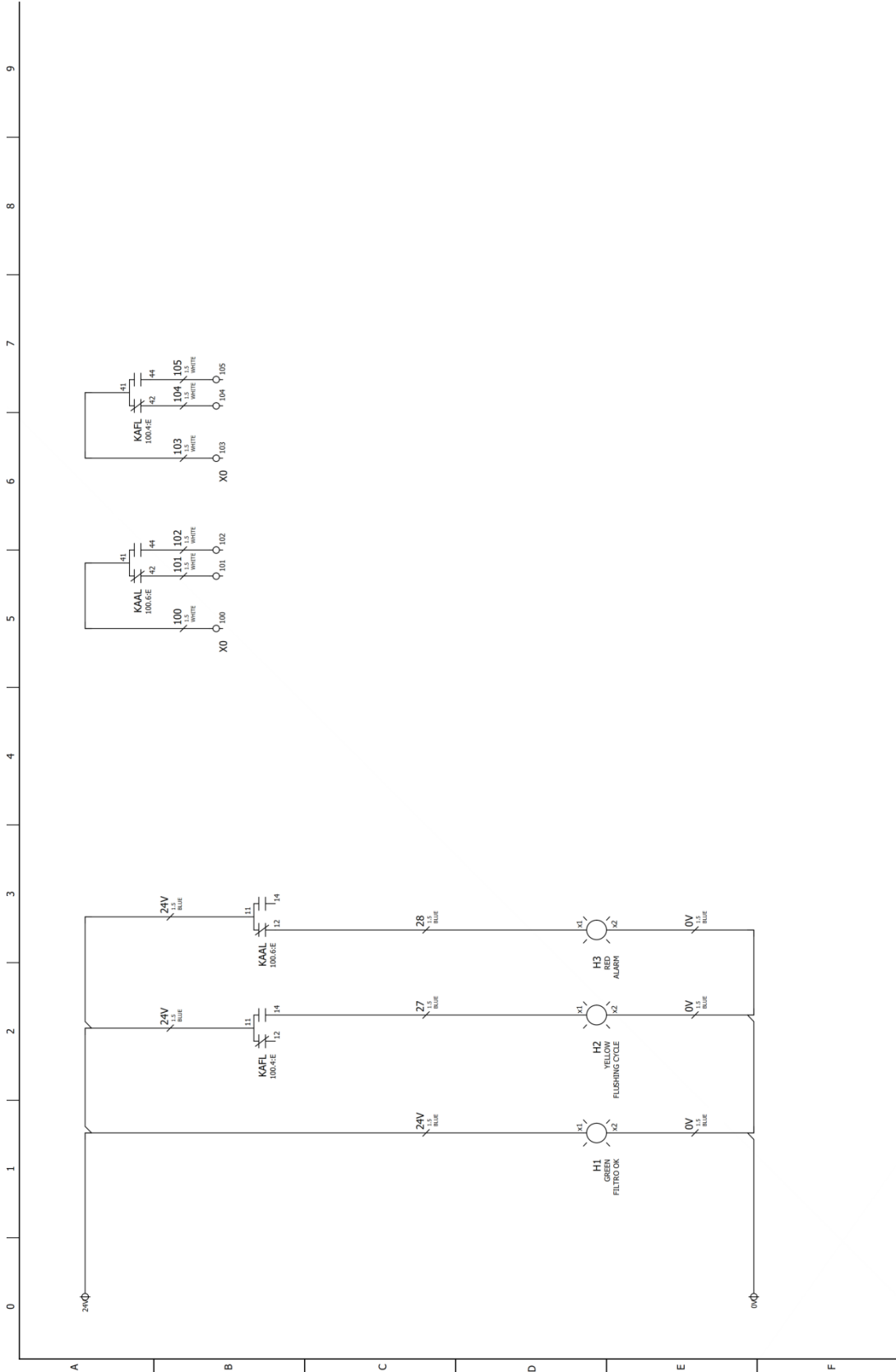
12. – CONTROL PANEL



Project	STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA
Issued by	D.GRACIA	Revision	22/08/2016
CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)		Sheet	110
		Description:	DIGITAL OUTPUTS (2/3)



12. – CONTROL PANEL



Project	STF-BETTER#V2	Client	STF
Date	22/08/2016	Checked by	D.GRACIA
Issued by	D.GRACIA	Revision	22/08/2016
CPF-208VE-24_3Ph. (Valve Power Supply: 24Vdc)		Sheet	120
		Description:	LAMPS AND FREE VOLTAGE CONTACTS



12. – CONTROL PANEL

When the control panel is installed with the filter, all the electrical connections between the control panel, the sensors and the actuators have already been installed and tested by the manufacturer. The standard input power supply is 208V AC 3Ph 60 Hz. Please consult with the manufacturer about alternatives.

WARNING!



IN THE ELECTRICAL BOX POWERED BY THREE-PHASE DURING STARTUP, CHECK THAT THE ROTATION OF THE MOTOR IS SUITABLE TO FILTER PROGRAMMING.

DESCRIPTION

The control panel contains the following monitoring and control components:

- Pilot Lights:
 - Green: Switches on in presence of power.
 - Yellow: Switches on when backwashing cycle is running.
 - Red: Switches on when alarm raised.
- Push button - has two functions:
 - Manually start a backwashing cycle.
 - Rearm the unit when fault status activated.

Sections 12.2 and 13 specify the messages that appear on the programmable relay.



12.1. – CONNECTION

WARNING!



RISK OF ELECTRIC SHOCK. THE OPERATIONS MARKED WITH THIS SYMBOL MUST ONLY BE PERFORMED BY QUALIFIED PERSONNEL.

The unit power supply, sensors and actuator are connected to the lower terminal in line with the following specification:

STANDARD COMMUNICATION SIGNALS

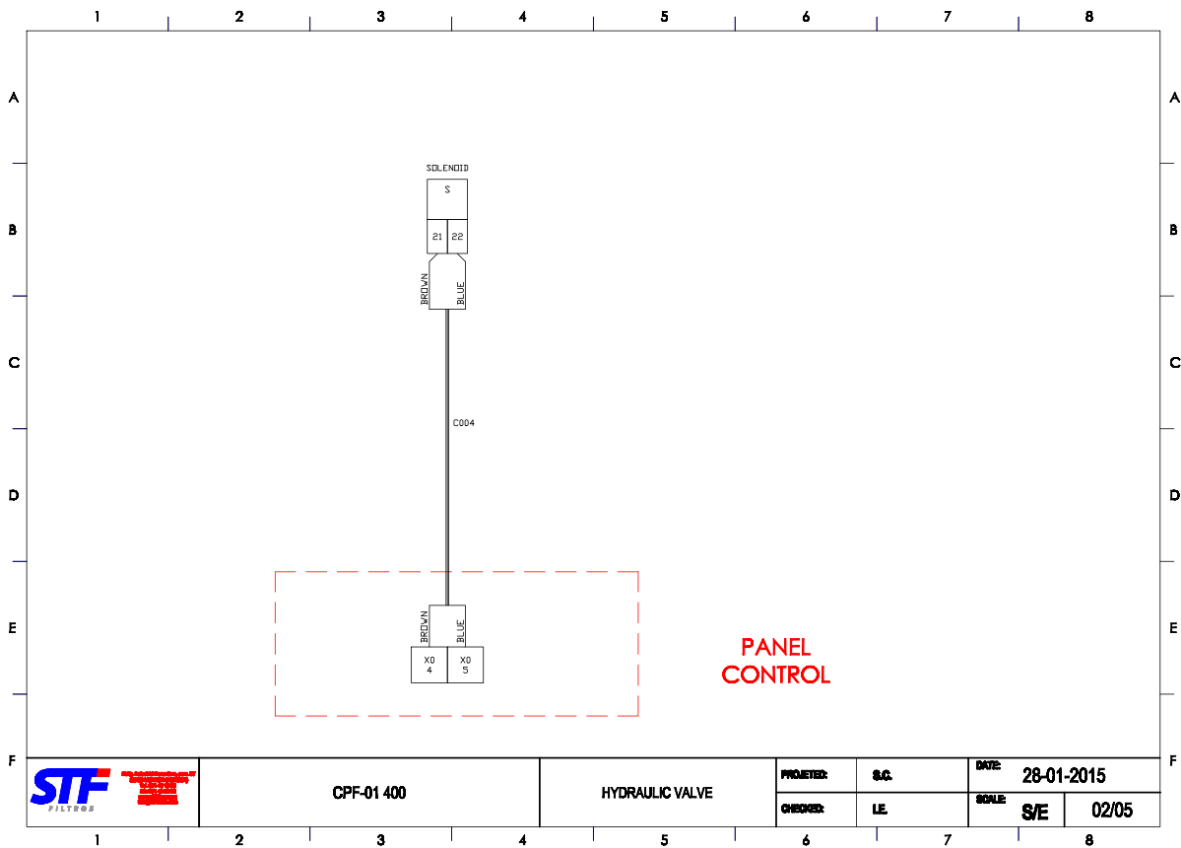
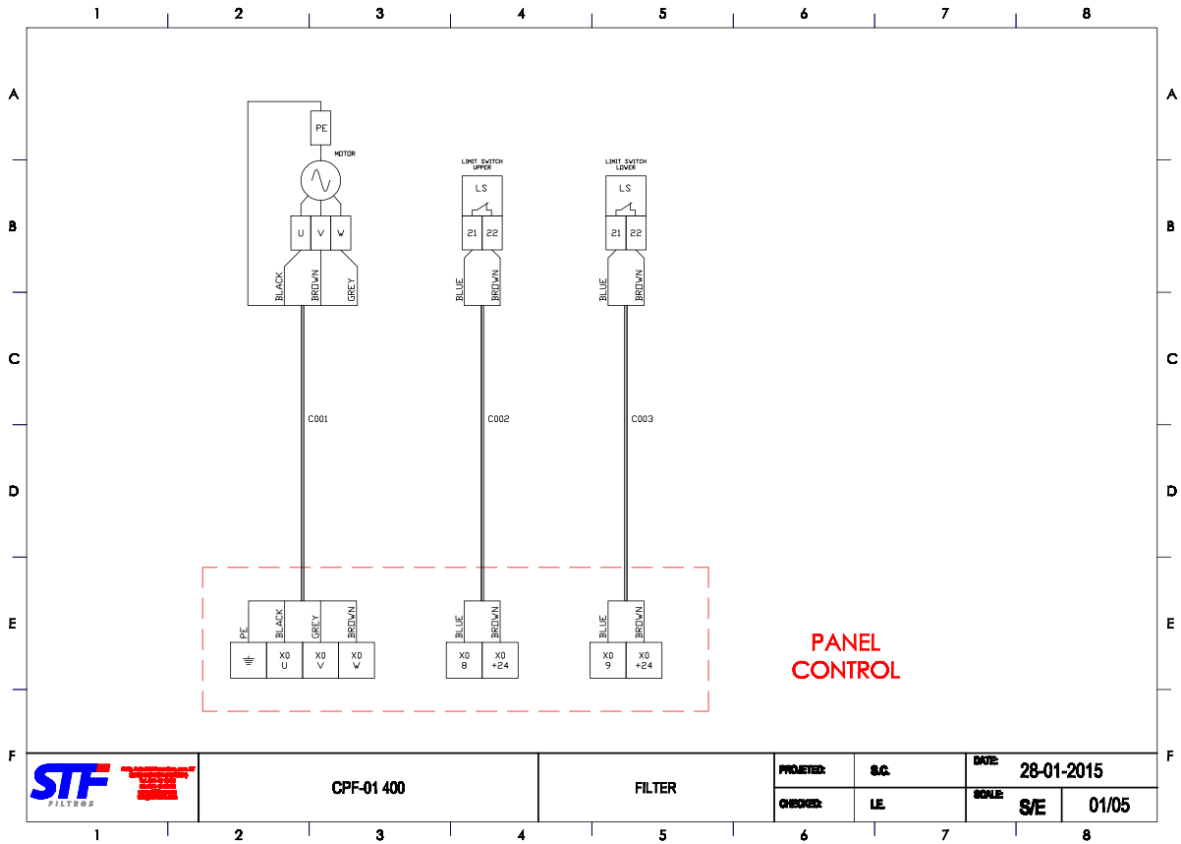


INLET:

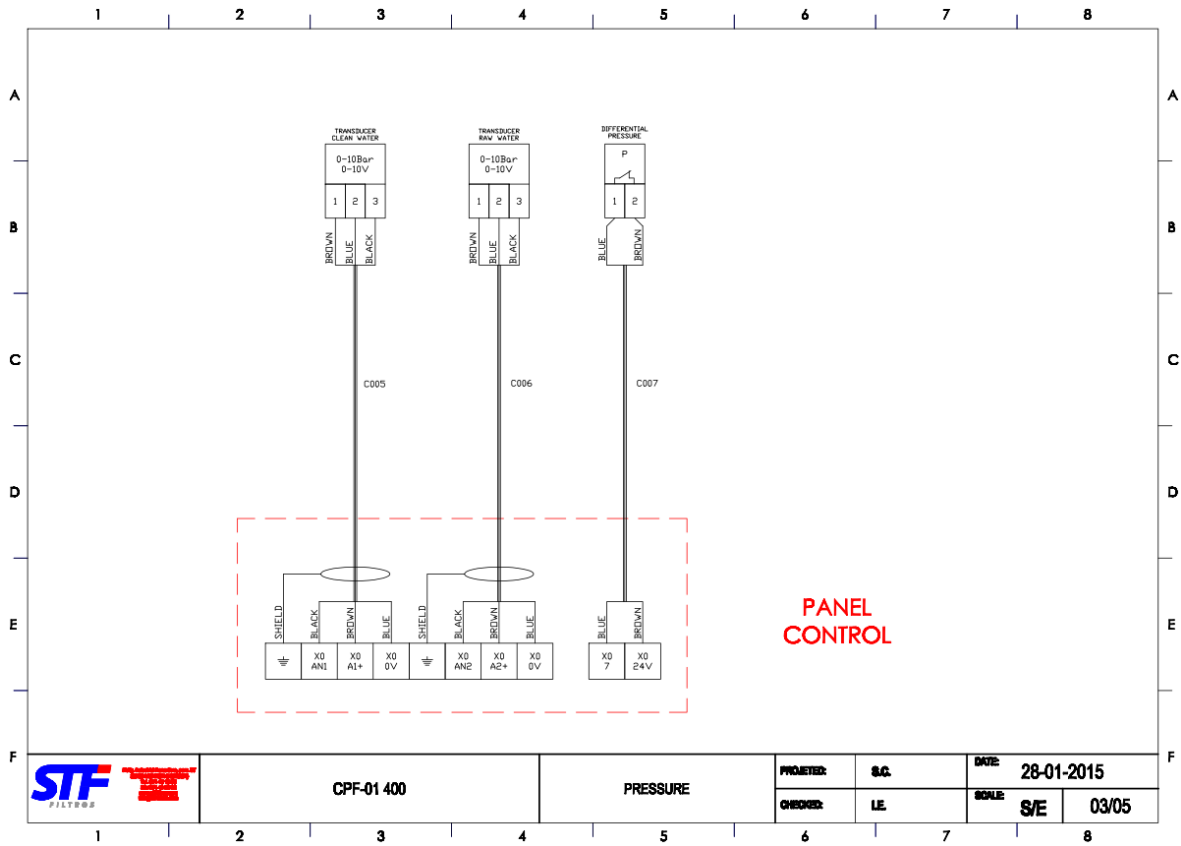
- FORCED BACKWASH / REARM +24 – 6

OUTLET:

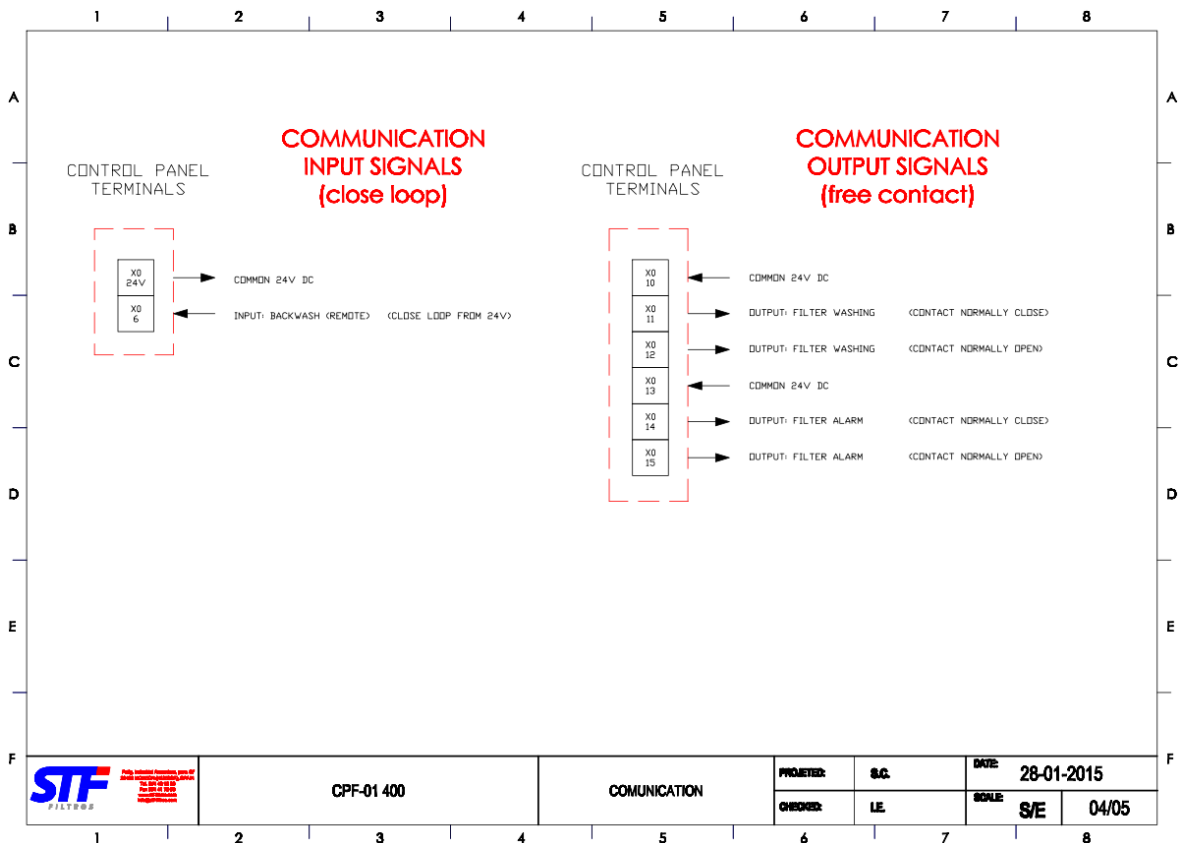
- ALARM (VOLT-FREE CONTACT): 10 – 11 – 12
- BACKWASH CYCLE (VOLT-FREE CONTACT): 13 – 14 – 15



[Control Panel]



[Control Panel]



	1	2	3	4	5	6	7	8																									
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TAG									DESCRIPTION	LENGHT																							
C001									WIRE 4x1,5mm ²	---																							
C002									WIRE 2x1mm ²	---																							
C003									WIRE 2x1mm ²	---																							
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C005									WIRE 3x1mm ² (SHIELD)	---																							
C006	WIRE 3x1mm ² (SHIELD)	---																															
C007	WIRE 2x1mm ²	---																															
B									B																								
C									C																								
D									D																								
E									E																								
F			CPF-01 400	TAGS		<table border="1"> <tr> <td>PROJECTED:</td> <td>S.G.</td> <td>DATE:</td> <td>28-01-2015</td> </tr> <tr> <td>CHECKED:</td> <td>LE</td> <td>SCALE:</td> <td>S/E 05/05</td> </tr> </table>	PROJECTED:	S.G.	DATE:	28-01-2015	CHECKED:	LE	SCALE:	S/E 05/05					F														
PROJECTED:	S.G.	DATE:	28-01-2015																														
CHECKED:	LE	SCALE:	S/E 05/05																														
	1	2	3	4	5	6	7	8																									

[TAG – DESCRIPTION – LENGTH]

12.2. – OPERATION

The home screen shows the following information: the upper parameters...3,4..., indicating the input signs for the programmer.

- Parameter 1 - Manual backwash button.
- Parameter 2 - Differential pressure switch (Works with pressure transducers by default).
- Parameter 3 - Forward stop limit.
- Parameter 4 - Backward stop limit.

In addition, the display features the day, time and if the programme is working (RUN) or stopped (STOP); should the unit be on STOP, there will be no backwash cycles. P indicates the button.

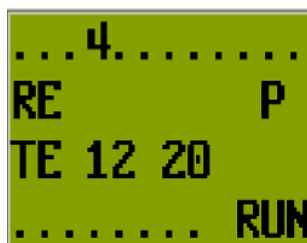


Photo: home screen.

When a backwash cycle starts, a screen appears to monitor the time in seconds and milliseconds. When the cycle concludes, the home screen reappears.



Photo: filter backwash screen.

Press to check the time since the last backwash (given in hours and minutes) and the total number of backwashes for the unit by pressing one of the ◀ or ▶ keys while on the home screen.

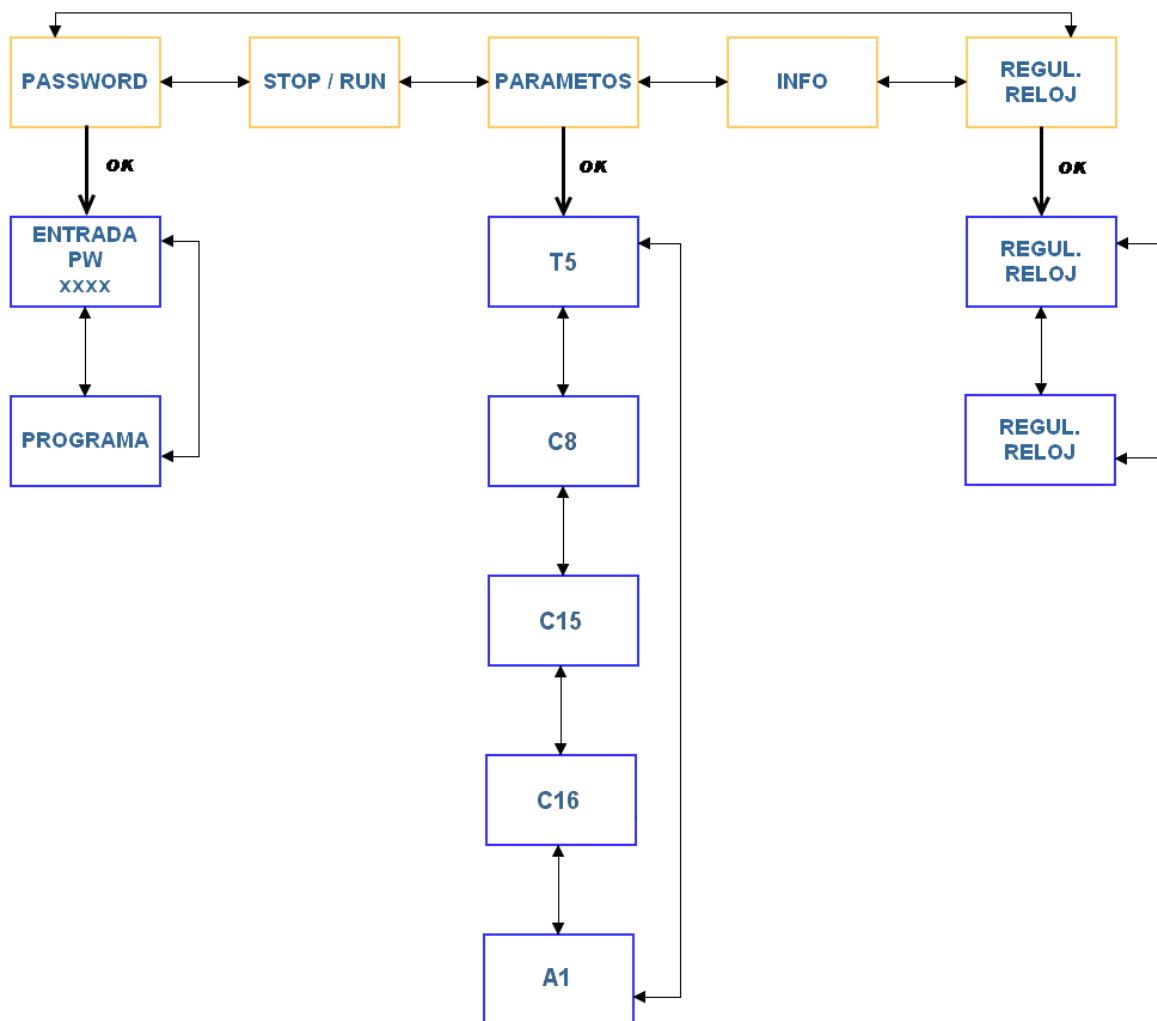


Photo: screen for most recent backwash & total no. backwashes.

12.3. –MODIFYING PARAMETERS

It is helpful to check the diagram below to facilitate access to the different programming applications. The diagram shows the main menu and several sub-menus. Access the applications on the main menu by pressing OK.

Use the ▼▲ keys to change menu choices. Access by pressing OK and exit using ESC.



[PARAMETERS – REGUL. CLOCK – PW INLET – PROGRAMME]

- **PASSWORD:** Allows access to the programme. It is protected to avoid changes that are not authorised by the manufacturer.
- **RUN / STOP:** Allows the operation cycle to be stopped, placing it in STOP.

On the LCD screen, the symbol ✓ appears with the current status; change this by using the ▼▲ keys to select STOP RUN (flickering will occur) and press OK.

- **PARAMETERS:** Allows access to the installation parameters which can be altered.

Use the ▼▲ keys to select PARAMETERS (flickering will occur) and press OK. The parameters are as follows:

T5– Time between backwashes:

Shows the regular backwash time in hours and minutes. This time returns to zero each time manual or automatic backwashing takes place. The value may vary depending on the needs of the facility.

- I1 – Consigned value for the regular backwash time in hours and minutes (H:M)
- T – Time since last backwash in hours and minutes (H:M)

Use the ▼▲ keys to position on I1, press OK to modify the values using the ▼▲ and ◀▶ keys. Finish by pressing OK again to accept the new value.

To exit, press ESC.

C8 – Language choice counter:

Allows the language to be selected for the messages monitored by the programmer. Choice of Spanish or English.

- 1 – Texts in Spanish. (default)
- 2 – Texts in English.

Use the ▼▲ keys to position on I1, press OK to modify the values using the ▼▲ and ◀▶ keys. Finish by pressing OK again to accept the new value.

To exit, press ESC.

C15 Consecutive backwash counter:

Shows the number of consecutive automatic backwashes during which the differential pressure switch sent a continuous signal. In this case, the value is 20. When the consecutive automatic backwashes reach this value, the filter will set off an ALARM. (See ALARMS section).

- S – Assigned value.
- C – Real counter value.

Use the ▼▲ keys to position on S, press OK to modify the values using the ▼▲ and ◀▶ keys. Finish by pressing OK again to accept the new value.

To exit, press ESC.

C16– Select differential pressure switch & pressure transducers:

Allows the filter pressure differential control method to be selected. This can be achieved through pressure transducers or a differential pressure switch.

- S – Assigned value.
 - 1 – Work with differential pressure switch.
 - 2 – Work with pressure transducers (default)

Use the ▼▲ keys to position on I1, press OK to modify the values using the ▼▲ and ◀▶ keys. Finish by pressing OK again to accept the new value.

To exit, press ESC.

WARNING!



CHANGING THIS VALUE IS NOT RECOMMENDED. IN A SPECIFIC CASE OF SIGNIFICANT WORSENING IN WATER QUALITY, THIS VALUE WILL BE ADJUSTED UPWARDS TO ALLOW THE FILTER TO RECOVER AUTOMATICALLY.

A1 – Assign pressure differential to work with pressure transducers:

Shows the difference in pressure which leads to the automatic backwash cycle starting when using pressure transducers.

- I1 – Water outlet pressure reader
- I2 – Water inlet pressure reader
- OS – Assigned value.

Use the ▼▲ keys to position on OS, press OK to modify the values using the ▼▲ and ◀▶ keys. Finish by pressing OK again to accept the new value.

To exit, press ESC.

WARNING!



CHANGING THIS VALUE IS NOT RECOMMENDED. NEVER INCREASE THE DIFFERENTIAL. ONLY ADJUST VALUES DOWNWARD TO FORCE THE AUTOMATIC BACKWASH PROCESS TO START EARLIER.

13. – WARNINGS AND ALARMS

1. When the programmer effects the number of consecutive backwashes given in parameter C2 (factory rating: 20) without a continuity solution, the safety mechanism will be activated and the filter backwash halted.

The alarm indicator light on the control panel will come on and this message will appear on the programme screen: **ALARM: 20 CONSECUTIVE BACKWASHES.**

This alarm indicates that the pressure differential continues to reach the electric switchboard; this may be the result of a fault in the measurement sensors, dirtied sensors or an excess of dirt in the water awaiting filtration.

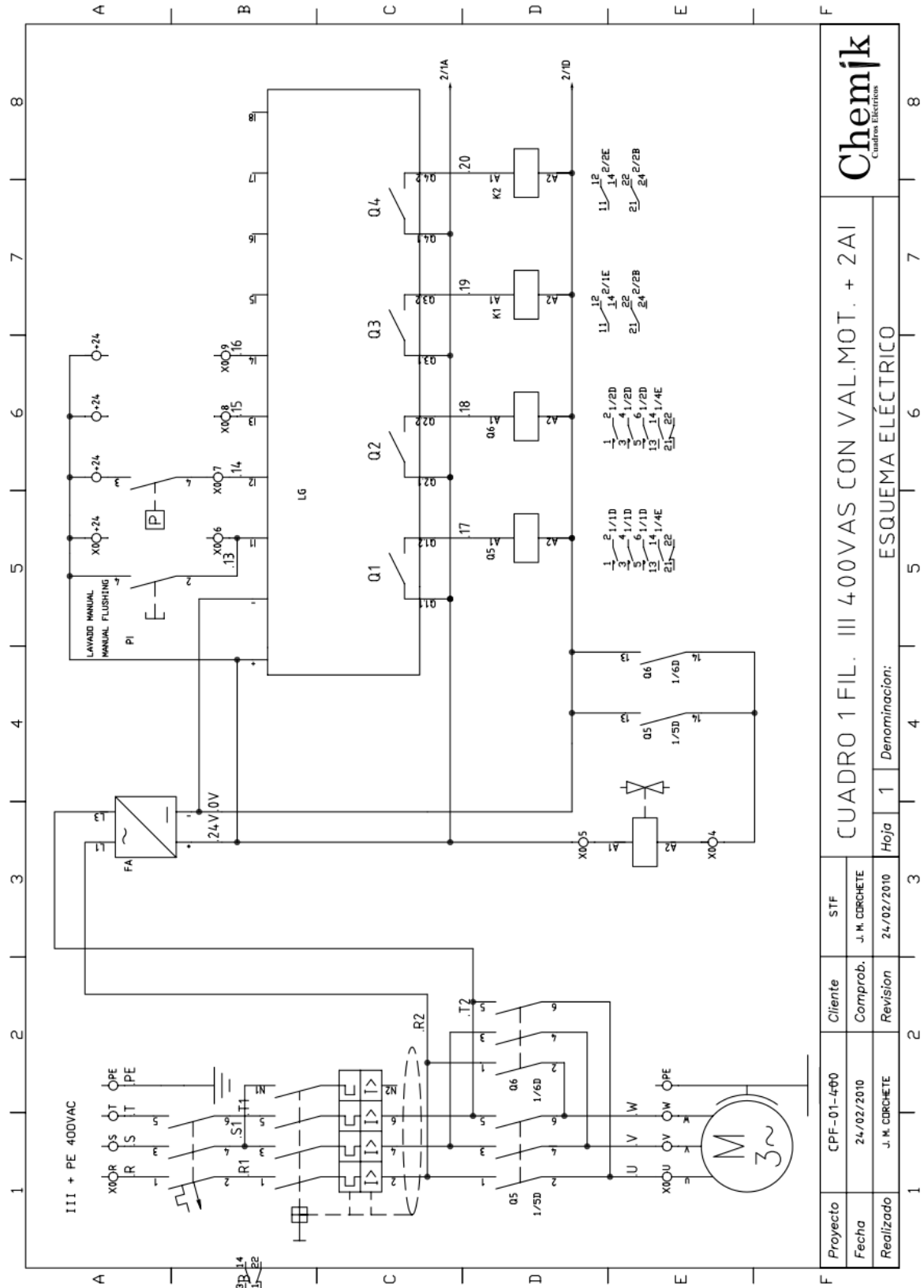
Remove the alarm by disengaging the Pressure switch or pressing the RUN, REARM, ALARM button.

2. If any of the motors stop running during the backwash process, the following message will appear on the programme screen: **ALARM: FORWARD STOP LIMIT.**

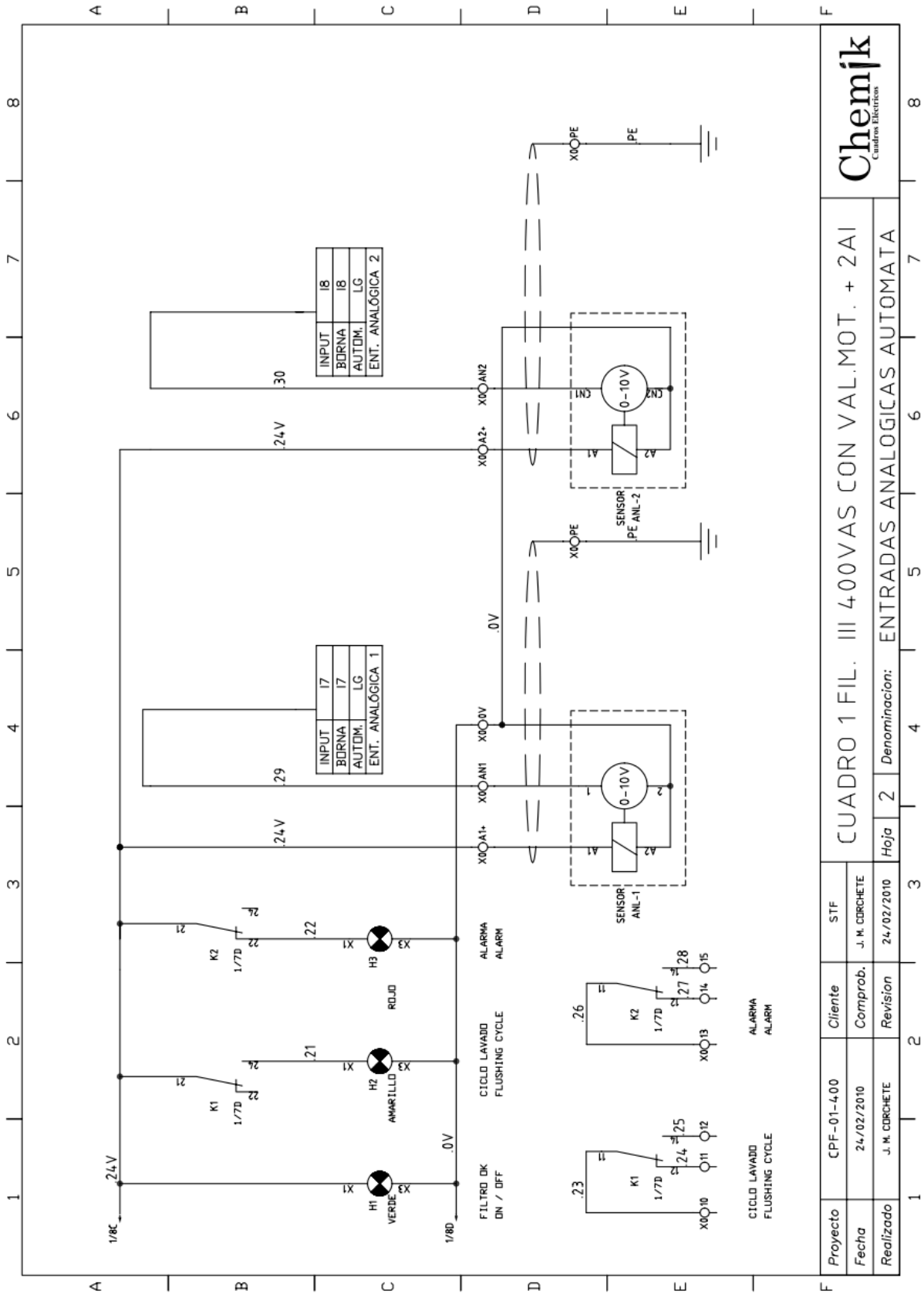
This alarm does not require rearming; confirm the forward stop limit signal is correctly received by the panel once two backwash cycles have been forced.

Should it not correct automatically, contact the manufacturer.

14. – CIRCUIT DIAGRAM



<p>CUADRO 1 FIL. III 400VAS CON VAL.MOT. + 2AI</p>	
<p>Hoja 1</p>	<p>Denominacion: ESQUEMA ELÉCTRICO</p>
<p>Proyecto CPF-01-400</p>	<p>Ciliente STF</p>
<p>Fecha 24/02/2010</p>	<p>Comprob. J. M. CORCHETE</p>
<p>Realizado J. M. CORCHETE</p>	<p>Revision 24/02/2010</p>



<p>CUADRO 1 FIL. III 400VAS CON VAL.MOT. + 2AI</p>	
<p>Hoja 2</p>	<p>Denominacion: ENTRADAS ANALOGICAS AUTOMATA</p>
<p>Proyecto CPF-01-400</p>	<p>Ciente</p>
<p>Fecha 24/02/2010</p>	<p>Comprob. J. M. CDRCHETE</p>
<p>Realizado J. M. CDRCHETE</p>	<p>Revision 24/02/2010</p>

Notes:

Issued – 02/03/2010

Checked – 02/03/2010

Issued by: Abraham Ayensa Sanz

MAIN ARTICLE	CPF-01-400 CONTROL CABINET FMA ALI 400V AC
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ITEM CODE	DESCRIPTION	BRAND	COMPONENT	QUANTITY
MIP-43	Polyester cabinet	Hazemeyer		1.00
EASY 512-DC-RC	Easy Automata 24 V DC 8 E 4S	Moeller	LG	1.00
S-12	2-contact relay base	Chemik	K1-K2	2.00
102000	2.5 mm Terminal	Weidmüller	X0	21.00
101000	2.5 mm Earthed terminal	Weidmüller	X0	3.00
102010	4 mm Terminal	Weidmüller	X0	6.00
101010	4 mm Earthed terminal	Weidmüller	X0	2.00
H05-VK 0.5N	H05-VK Cable 0.5 Black (Box)			8.00
H05-VK 1N	H05-VK Cable 0.5 Black (Box)			20.00
H05-VK 1.5N	H05-VK Cable 0.5 Black (Box)			6.00
H05-VK 2.5N	H05-VK Cable 0.5 Black (Box)			4.00
25.20.77	Channel 25*20 Grey	Unex		0.50
60.30.77	Channel 60*30 Grey	Unex		1.00
3SB3291	Protective cap	Siemens	P1	1.00
316P6	Aerial pin 3+E 16A 380V IP44	Chemik	ALI	1.00
3RT1015-1BB41	7A Contactor 24 V DC + 1NA	Siemens	Q5-Q6	2.00
5SM3 642-0	Differential 3+N 25A 300mA	Siemens	DIF	1.00
8WA746	Lift terminal	Siemens	X0	2.00
AE05ADH	Triang. Label Stripe 52mm (AE-52)	Chemik		1.00
857528	Power source 380V/24V DC 5A	Weidmüller	FA	1.00
B50-3.2-AM	Yellow shrink-wrapped sleeve Ø3.2			4.50
POF	Set 4 wall-mounted cabinet wings	Chemik		1.00
3SX1344	Siemens 30 V lamp 3 W	Siemens	H1-H2-H3	3.00
5SJ6310-7	3P Circuit breaker 10 AC	Siemens	I-C	1.00
F 224	Smooth omega section (038340)	Chemik		1.00
3SB3204-6AA30	Pilot light – Yellow	Siemens	H2	1.00
3SB3204-6AA20	Pilot light – Red	Siemens	H3	1.00
3SB3204-6AA10	Pilot light – Green	Siemens	H1	1.00
00378495	Base plate STF-01-02			1.00
86361010	Nameplate KS 15/27	Chemik	P-1 H-1 H-2 H-3	4.00
86401026	Terminal plate KMR 5/7.5-5	Chemik		31.00
EG-13.5	White PVC Press PG13.5 + Nut	Chemik	ALI	1.00
EG-21	White PVC Press PG21 + Nut	Chemik	Sign+Mot.	1.00
EG-16	White PVC Press PG16 + Nut	Chemik	Analogue	1.00
169389	2.5 mm Terminal bridge (WDU2.5) 50U	Weidmüller	X0	0.12
175827	4 mm Terminal bridge (WDU2.5) 41P	Weidmüller	X0	6.00
3SB3202-OAA31	Yellow push button + INA	Siemens	P1	1.00
C12A21X24VDC	2 Contact relay 24 V DC	Chemik	K1-K2	2.00
38AA3910	Aluminium rivet 3.9*10 Narrow wing	Chemik		20.00
86441016	Push button plate support BTK Ø22	Chemik	P1 H-1 H-2 H-3	4.00
038356	End terminal limiter EW35	Weidmüller	X0	3.00

15. – HYDRAULIC CIRCUIT

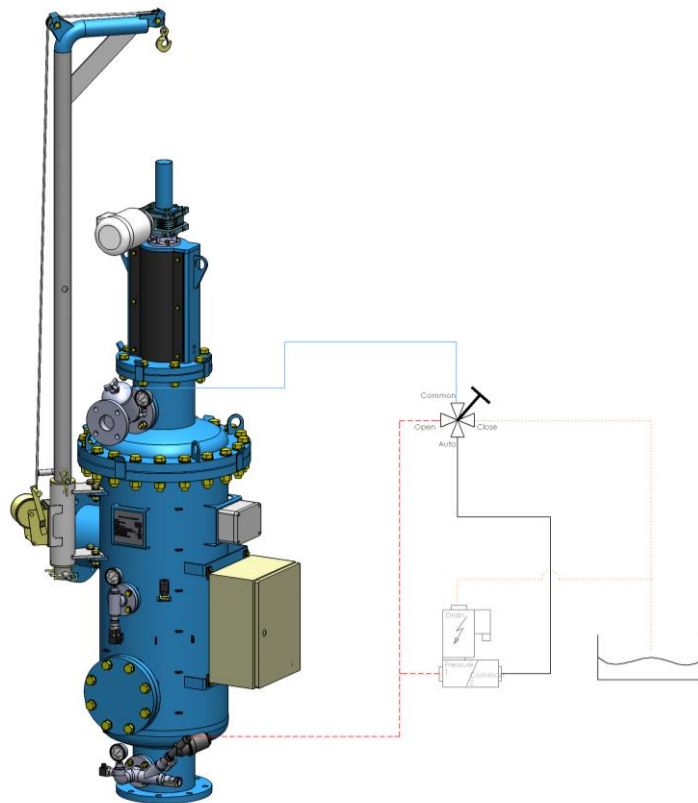
The filter has a hydraulic valve to evacuate the backwash flow. The valve remains closed by means of an internal spring; it opens when water enters the lower chambers and closes once the liquid has drained out.

The valve is mechanically regulated, thus the backwash flow can be adjusted to facilities with pressure of above 6 bar (87 psi).

The opening and closing processes are automated and use a 24 V DC NC (normally closed) solenoid. As specified in the attached plan.

The three-way valve remains in AUTO; manual operation is possible using the OPEN or CLOSE positions.

CONEXIONES HIDRAULICAS



Solenoid NO
24v. DC



Valvula 3 Vias

--- Linea de Presion en Alta

--- Linea de Venteo

— Linea de Comando

[HYDRAULIC CONNECTIONS; SOLENOID NO; HIGH PRESSURE LINE; VENT LINE; COMMAND LINE; THREE-WAY VALVE]

WARNING!

MAINTAIN THE FILTER PROTECTING THE CIRCUIT THROUGH
REGULAR BACKWASHES.

DRAINAGE OUTFLOW OVER LONG DISTANCES MAY CAUSE
OPERATIONAL DIFFICULTIES.

NOTE

THE ABOVE PLAN IS VALID FOR STANDARD UNITS AT MAX. 10 BAR
(145 PSI) PRESSURE.

FOR A DIFFERENT PRESSURE, CONTACT THE MANUFACTURER.

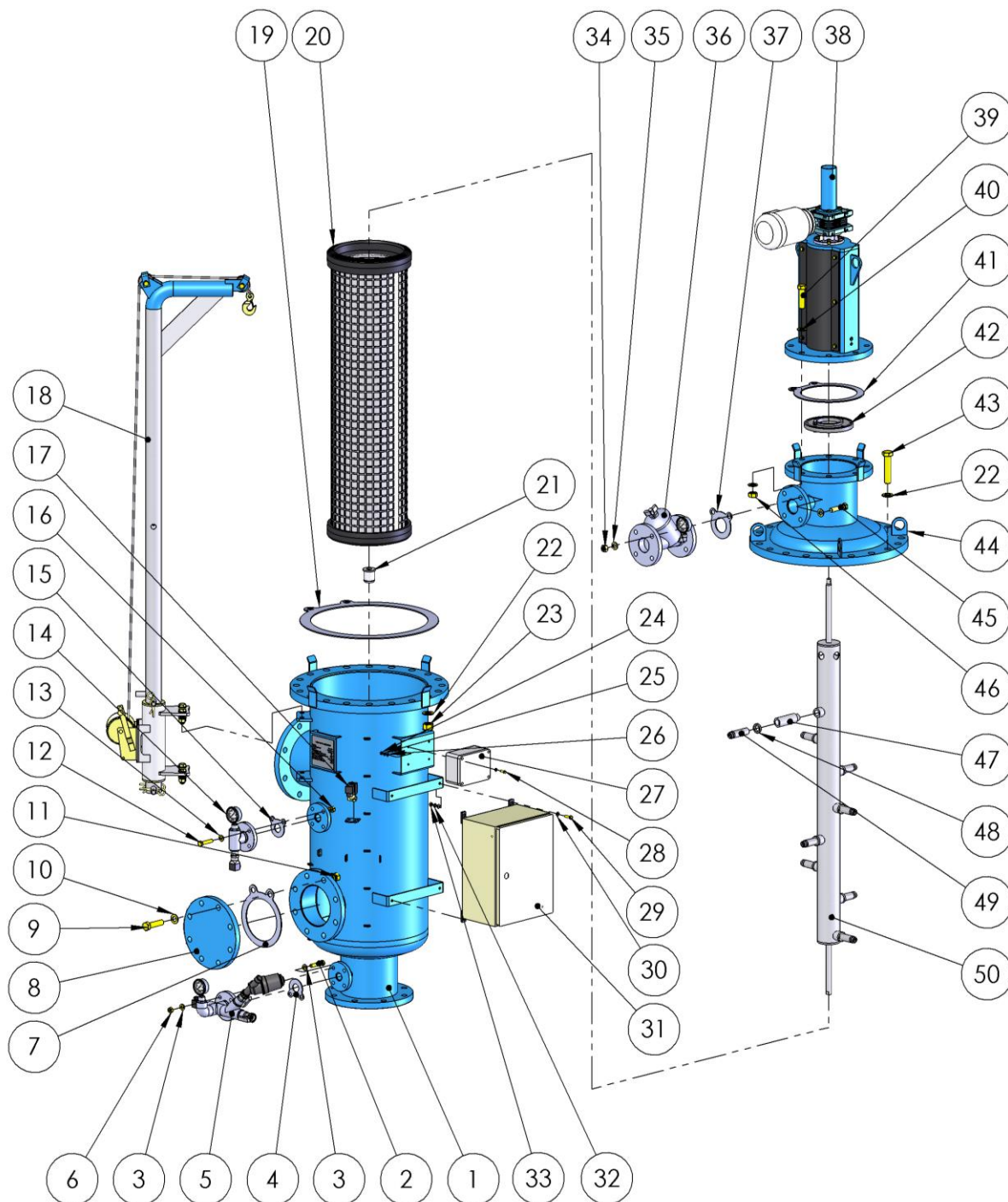
16. – EXPLODED VIEW

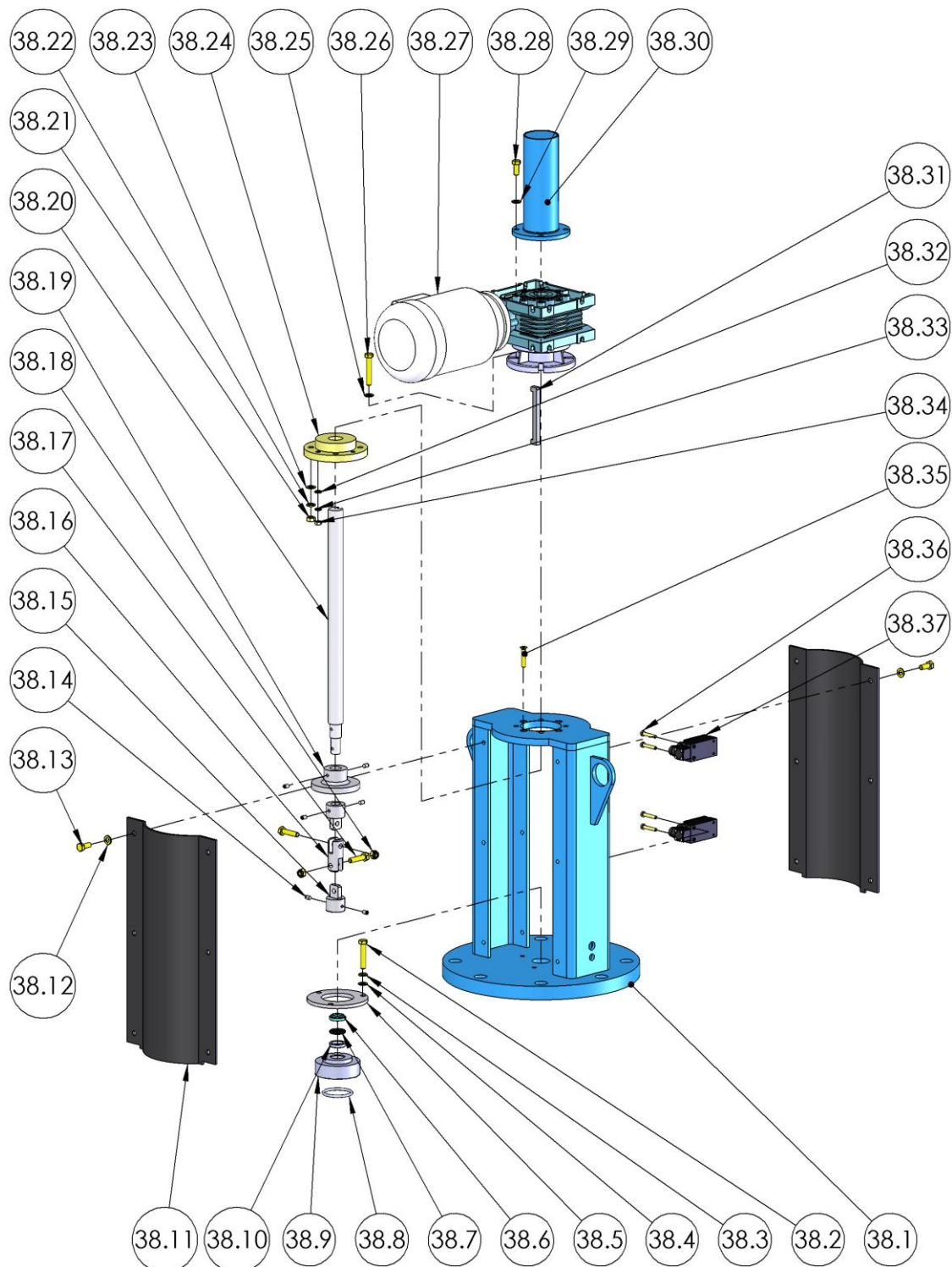
Position	Unit Model	Description	No. units
1	FMA-9008	FMA-9008 Housing	1
	FMA-9010	FMA-9010 Housing	1
	FMA-9012	FMA-9012 Housing	1
	FMA-9014	FMA-9014 Housing	1
2	FMA-9008 - 9014	M12 Bolt x 60	4
3	FMA-9008 - 9014	M12 Washer	8
4	FMA-9008 - 9014	Dn-25 Flat Joint	1
5	FMA-9008 - 9014	SET: LOWER CONNECTIONS	
5.1	FMA-9008 - 9014	3/4" Valve Code 02579 Ref. 0590625 CEPEX	2
5.2	FMA-9008 - 9014	32-25x3/4" Mixed adapter Code 02252 Ref. 0531434 CEPEX	2
5.3	FMA-9008 - 9014	TE 45° Code 22585 Ref. 0536032 CEPEX	1
5.4	FMA-9008 - 9014	PVC32 pn10 tube L=34	3
5.5	FMA-9008 - 9014	Cross 32 Code 20145 Ref. 0528032 CEPEX	1
5.6	FMA-9008 - 9014	90° Elbow Code 01714 Ref. 0501032 CEPEX	1
5.7	FMA-9008 - 9014	32x20 Reduction guide bush 01917 Ref. 0506033 CEPEX	2
5.8	FMA-9008 - 9014	20-16x1/4" Mixed adapter Code 02246 Ref. 0531423 CEPEX	2
5.9	FMA-9008 - 9014	Glycerine pressure gauge (Male) Gas-1/4"	1
5.10	FMA-9008 - 9014	Pressure transducer (Male) Gas-1/4"	1
5.11	FMA-9008 - 9014	32 Flange with sleeve Code 22577 Ref. 0525032 CEPEX	1
5.12	FMA-9008 - 9014	Water inlet filter 120mesh M/M Gas-3/4"	1
6	FMA-9008 - 9014	M12 Nut	4
7	FMA-9008 - 9014	Dn-150 Flat Joint	1
8	FMA-9008 - 9014	Blind flange Dn-150-pn10	1
9	FMA-9008 - 9014	M20 Bolt x 80	8
10	FMA-9008 - 9014	M20 Washer	16
11	FMA-9008 - 9014	M20 Nut	8
12	FMA-9008 - 9014	M12 Bolt x 60	4
13	FMA-9008 - 9014	M12 Washer	8
14	FMA-9008 - 9014	SET: UPPER CONNECTIONS	
14.1	FMA-9008 - 9014	32 Flange with sleeve Code 22577 Ref. 0525032 CEPEX	1
14.2	FMA-9008 - 9014	PVC32 pn10 tube L=34	1
14.3	FMA-9008 - 9014	Pressure transducer (Male) Gas-1/4"	1
14.4	FMA-9008 - 9014	20-16x1/4" Mixed adapter Code 02246 Ref. 0531423 CEPEX	2
14.5	FMA-9008 - 9014	32x20 Reduction guide bush 01917 Ref. 0506033 CEPEX	2
14.6	FMA-9008 - 9014	32 TE 90° Code 01782 Ref. 0503032 NF CEPEX	1
14.7	FMA-9008 - 9014	Glycerine pressure gauge (Male) Gas-1/4"	1
15	FMA-9008 - 9014	Dn-25 Flat Joint	1
16	FMA-9008 - 9014	M12 Nut	4
17	FMA-9008 - 9014	NC 24v DC Solenoid	1
18	FMA-9008 - 9014	DAVIT SET	
18.1	FMA-9008 - 9014	M6 Bolt x12	8
18.2	FMA-9008 - 9014	FMA-9000 Sliding davit guide bush	2
18.3	FMA-9008 - 9014	M16 Bolt x 50	4
18.4	FMA-9008 - 9014	M16 Washer	8

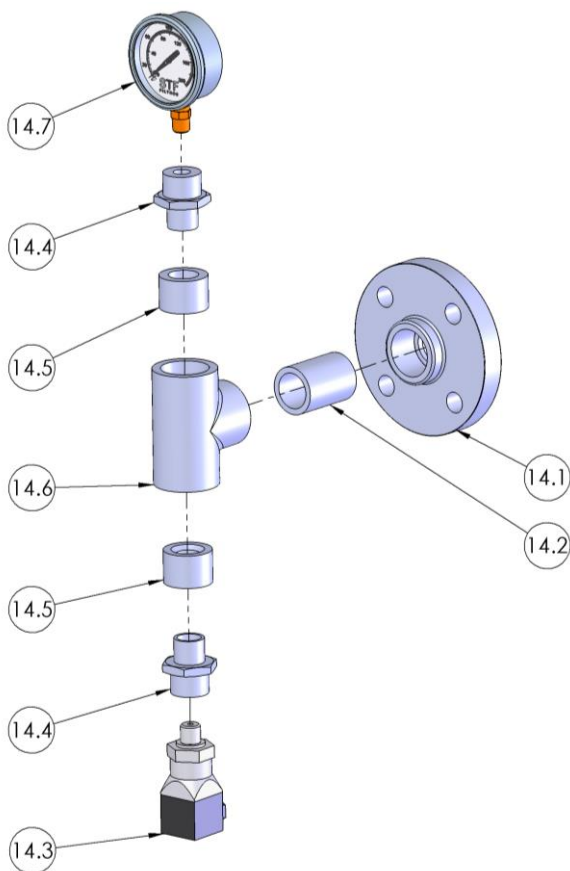
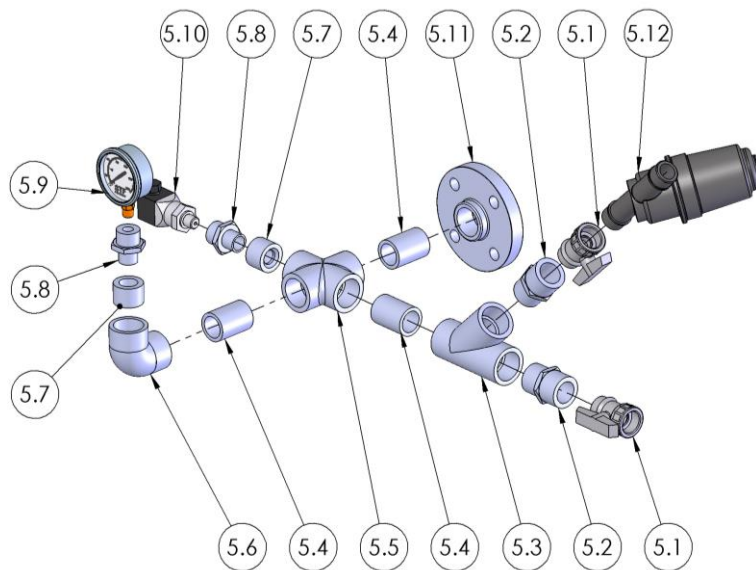
Position	Unit Model	Description	No. units
18.5	FMA-9008 - 9014	FMA-9000 Davit support	1
18.6	FMA-9008 - 9014	M16 Washer	4
18.7	FMA-9008 - 9014	M16 Nut	4
18.8	FMA-9008 - 9014	Winch	1
18.9	FMA-9008 / 9012	FMA-9008 Davit	1
	FMA-9010 / 9014	FMA-90148 Davit	1
18.10	FMA-9008 - 9014	ø5 Dowel pin DIN-11024	3
18.11	FMA-9008 - 9014	FMA-9000 Lower dowel pin	1
18.12	FMA-9008 - 9014	FMA-9000 Upper dowel pin	1
18.13	FMA-9008 - 9014	Safety hook	1
18.14	FMA-9008 - 9014	M12 Bolt x 60	2
18.15	FMA-9008 - 9014	Towbar support	2
18.16	FMA-9008 - 9014	Davit wheel guide bush	2
18.17	FMA-9008 - 9014	Davit wheel guide	2
18.18	FMA-9008 - 9014	M12 Washer	4
18.19	FMA-9008 - 9014	M12 Nut	2
18.20	FMA-9008 - 9014	Towbar	1
19	FMA-9008 - 9014	Dn-450 Flat Joint	1
	FMA-9008 - 9014	Dn-600 Flat Joint	1
20	FMA-9008	FMA-9008 FILTRATION CARTRIDGE SET	
	FMA-9010	FMA-9010 FILTRATION CARTRIDGE SET	
	FMA-9012	FMA-9012 FILTRATION CARTRIDGE SET	
	FMA-9014	FMA-9014 FILTRATION CARTRIDGE SET	
20.1	FMA-9008 / 9010	FMA-9008 Upper Joint	1
	FMA-9012 / 9014	FMA-9014 Upper Joint	1
20.2	FMA-9008	Stainless steel mesh cartridge Microns	1
	FMA-9010	Stainless steel mesh cartridge Microns	1
	FMA-9012	Stainless steel mesh cartridge Microns	1
	FMA-9014	Stainless steel mesh cartridge Microns	1
20.3	FMA-9008 / 9010	FMA-9008 Lower Joint	1
	FMA-9012 / 9014	FMA-9014 Lower Joint	1
21	FMA-9008 - 9014	FMA-9000 Guide bush assembly	1
22	FMA-9008 / 9010	M24 Washer	40
	FMA-9012 / 9014	M27 Washer	40
23	FMA-9008 / 9010	M24 Nut	20
	FMA-9012 / 9014	M27 Nut	20
24	FMA-9008 - 9014	M6 Nut	4
25	FMA-9008 - 9014	M6 Washer	4
26	FMA-9008 - 9014	M6 Washer	8
27	FMA-9008 - 9014	Box with opaque cover 165x120x80	1
28	FMA-9008 - 9014	M6 Bolt x 20	4
29	FMA-9008 - 9014	M8 Bolt x 30	4
30	FMA-9008 - 9014	M8 Washer	8
31	FMA-9008 - 9014	CPF-01 Electric panel (for 1 filter, panel at 230v AC)	1
	FMA-9008 - 9014	CPF-04 Electric panel (for 4 filters, panel at 230v AC)	1
	FMA-9008 - 9014	CPF-10 Electric panel (for 10 filters, panel at 230v AC)	1
	FMA-9008 - 9014	CPF-01-400 Electric panel (for 1 filter, panel at 400v AC)	1
	FMA-9008 - 9014	CPF-04-400 Electric panel (for 4 filters, panel at 400v AC)	1

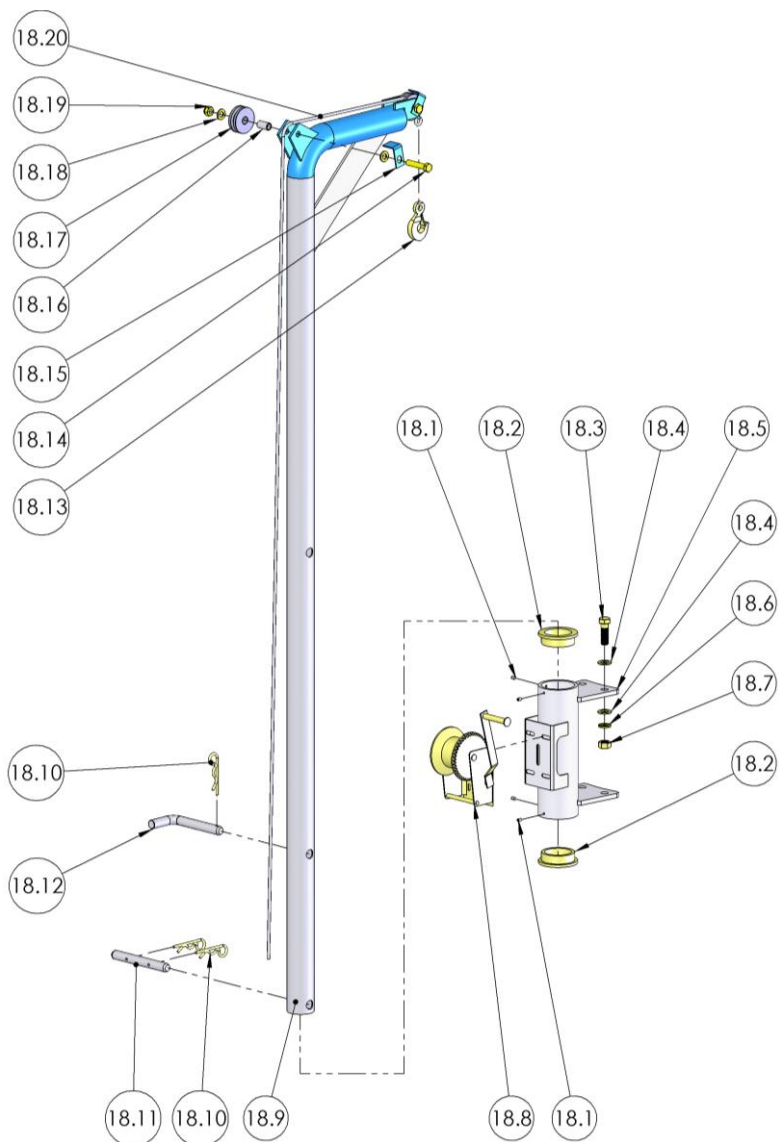
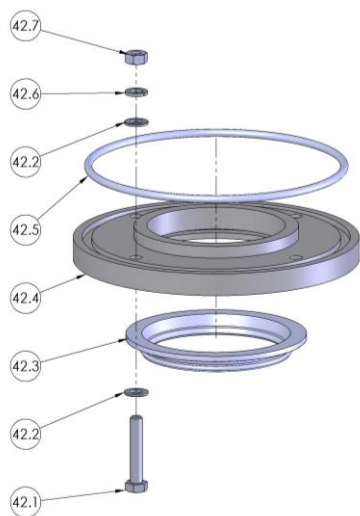
Position	Unit Model	Description	No. units
	FMA-9008 - 9014	CPF-10-400 Electric panel (for 10 filters, panel at 400v AC)	1
	FMA-9008 - 9014	CPF-01-12 Electric panel (for 1 filter, panel at 12v DC)	1
	FMA-9008 - 9014	CPF-03-12 Electric panel (for 3 filters, panel at 12v DC)	1
32	FMA-9008 - 9014	M8 Washer	4
33	FMA-9008 - 9014	M8 Nut	4
34	FMA-9008 - 9014	M16 Nut	4
35	FMA-9008 - 9014	M16 Washer	8
36	FMA-9008 - 9014	BACKWASH VALVE SET	1
36.1	FMA-9008 - 9014	S-400 2" Valve flange	1
36.2	FMA-9008 - 9014	Male-Female elbow 1-4 Code 09130013 Legris	1
36.3	FMA-9008 - 9014	Glycerine pressure gauge (Male) Gas-1/4"	1
37	FMA-9008 - 9014	Dn-50 Flat Joint	1
38	FMA-9008 - 9014	TURRET SET	1
38.1	FMA-9008 - 9014	Turret	1
38.2	FMA-9008 - 9014	M8 Bolt x 45	3
38.3	FMA-9008 - 9014	M8 Washer	3
38.4	FMA-9008 - 9014	M8 Washer	3
38.5	FMA-9008 - 9014	Rim water-tightness washer	1
38.6	FMA-9008 - 9014	AUASOB Scraper 20X28X4.8/7	1
38.7	FMA-9008 - 9014	Quad joint EQ-16	1
38.8	FMA-9008 - 9014	ø45 O-ring joint x4	1
38.9	FMA-9008 - 9014	Rim water-tightness	1
38.10	FMA-9008 - 9014	NI-150 Joint 20x28x5.5	1
38.11	FMA-9008 - 9014	Protective cover	2
38.12	FMA-9008 - 9014	M8 Washer	12
38.13	FMA-9008 - 9014	M8 Bolt x 20	12
38.14	FMA-9008 - 9014	M6 Bolt x12	6
38.15	FMA-9008 - 9014	Male crosspiece	2
38.16	FMA-9008 - 9014	Female crosspiece	1
38.17	FMA-9008 - 9014	M8 Bolt x 35	2
38.18	FMA-9008 - 9014	M8 Nut	2
38.19	FMA-9008 - 9014	Forward stop limit	1
38.20	FMA-9008 - 9014	Spindle	1
38.21	FMA-9008 - 9014	M8 Nut	4
38.22	FMA-9008 - 9014	M8 Washer	4
38.23	FMA-9008 - 9014	M8 Washer	4
38.24	FMA-9008 - 9014	Bronze nut	1
38.25	FMA-9008 - 9014	M8 Washer	4
38.26	FMA-9008 - 9014	M8 Bolt x 50	4
38.27	FMA-9008 - 9014	AC 0.37 kW 27 rpm Fs-1.5 Gear engine - Outlet flange	1
	FMA-9008 - 9014	DC 12v 27 rpm Gear engine - Outlet flange	1
38.28	FMA-9008 - 9014	M8 Bolt x 20	4
38.29	FMA-9008 - 9014	M8 Washer	4
38.30	FMA-9008 - 9014	Spindle cover	1
38.31	FMA-9008 - 9014	Driving key	1
38.32	FMA-9008 - 9014	M6 Washer	4
38.33	FMA-9008 - 9014	M6 Washer	4
38.34	FMA-9008 - 9014	M6 Nut	4

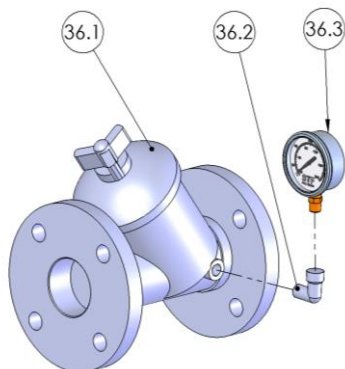
Position	Unit Model	Description	No. units
38.35	FMA-9008 - 9014	M6 Bolt x 35	4
38.36	FMA-9008 - 9014	M5 Bolt x 30	4
38.37	FMA-9008 - 9014	Omron forward stop limit with roller	2
39	FMA-9008 - 9014	M20 Bolt x 80	8
40	FMA-9008 - 9014	M20 Washer	16
41	FMA-9008 - 9014	Dn-200 Flat Joint	1
42	FMA-9008 - 9014	WATER-TIGHTNESS DISC SET	1
42.1	FMA-9008 - 9014	M8 Bolt x 45	4
42.2	FMA-9008 - 9014	M8 Washer	8
42.3	FMA-9008 - 9014	H Joint	1
42.4	FMA-9008 - 9014	FMA-9000 Water-tightness disc	1
42.5	FMA-9008 - 9014	ø165 O-ring seal x5	1
42.6	FMA-9008 - 9014	M8 Washer	4
42.7	FMA-9008 - 9014	M8 Nut	4
43	FMA-9008 / 9010	M24 Bolt x 110	20
	FMA-9012 / 9014	M27 Bolt x 120	20
44	FMA-9008 / 9010	FMA-9008 / 9010 Cover	1
	FMA-9012 / 9014	FMA-9012 / 9014 Cover	1
45	FMA-9008 - 9014	M16 Bolt x 70	4
46	FMA-9008 - 9014	M20 Nut	8
47	FMA-9012	Nozzle extension	8
	FMA-9014	Nozzle extension	10
48	FMA-9008 / 9012	3/4" Nozzle nut	8
	FMA-9010 / 9014	3/4" Nozzle nut	10
49	FMA-9008 / 9012	Hair filtration nozzle	8
	FMA-9010 / 9014	Hair filtration nozzle	10
50	FMA-9008 / 9012	FMA-9008 / 9012 Scanner	1
	FMA-9010 / 9014	FMA-9010 / 9014 Scanner	1

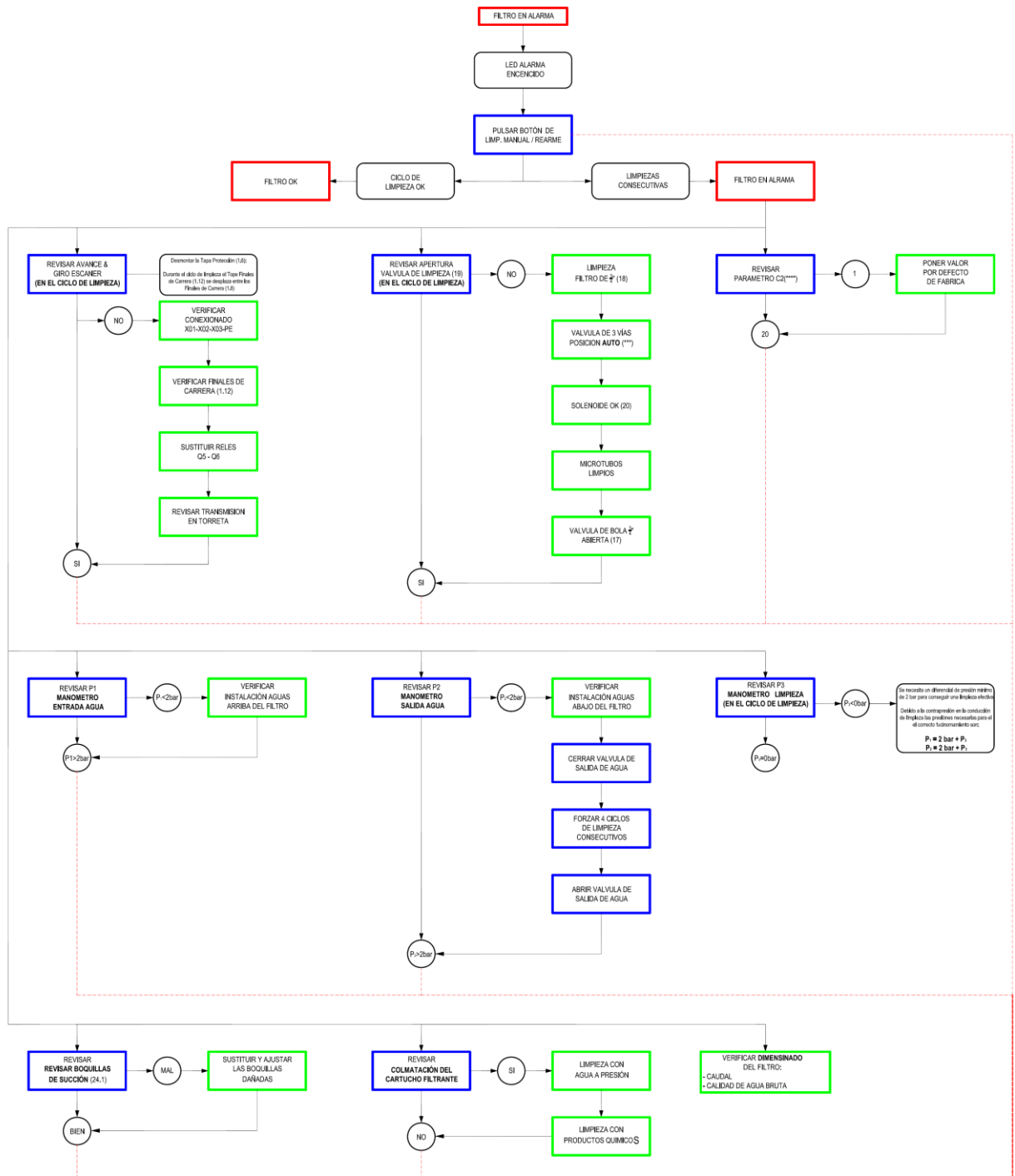












(***) – See section: Hydraulic circuit.

(****) C2 – Consecutive backwash counter.
See section: Programme panel / Modify parameters.

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