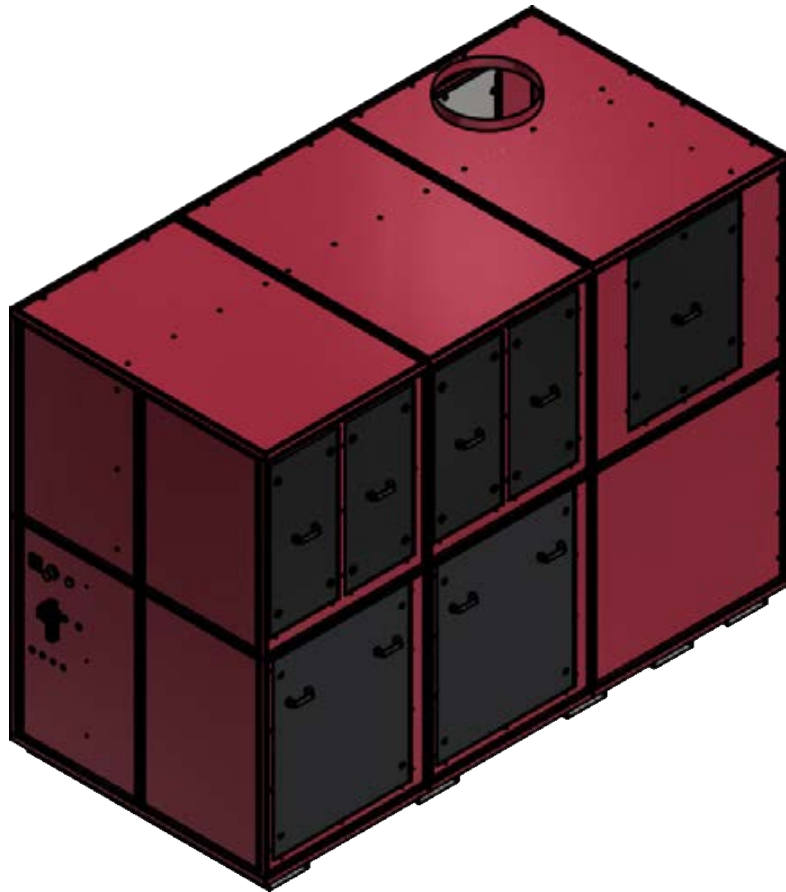


FILTRATION UNIT

DIGIFILTER COMPACT

SAFETY INSTRUCTIONS FOR OPERATING AND MAINTENANCE

NO EM61000005; EM61000010; EM61000011; EM61000012; EM61000013; EM61000014
EM61000018; EM61000019; EM61000020; EM61000021; EM61000022; EM61000529
EM61000553 ; EM61000753



ISSUE : EN
REVISION : B
DATE : 09 - 2024

Instructions

REF: 8695 8909

Original instructions

Thank you very much for the trust you have shown by choosing this piece of equipment. It will give you trouble-free service if it is used and maintained as recommended.

Its design, component specifications and manufacturing are in accordance with applicable European directives.

Please refer to the CE declaration enclosed to identify the directives applicable to it.

The manufacturer shall not be liable for any combination of parts not recommended by it.

For your safety, please follow the non-limitative list of recommendations and obligations, a large part of which are included in the Labour Code.

Please inform your supplier if you find any error in this instruction manual.

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INFORMATION

This technical literature is intended for the following machines or products:

- **DIGIFILTER 2CD** automatic unclogging filter with inlet on the right → EM61000005
- **DIGIFILTER 4CD** automatic unclogging filter with inlet on the right → EM61000010
- **DIGIFILTER 4CD** automatic unclogging filter with inlet on the left → EM61000018
- **DIGIFILTER 4CD - LINCUT** automatic unclogging filter with inlet on the right → EM61000529
- **DIGIFILTER 6CD** automatic unclogging filter with inlet on the right → EM61000011
- **DIGIFILTER 6CD** automatic unclogging filter with inlet on the left → EM61000019
- **DIGIFILTER 6CD - OPTITOME** automatic unclogging filter with inlet on the right → EM61000553
- **DIGIFILTER 6CD** Black automatic unclogging filter with inlet on the right → EM61000753
- **DIGIFILTER 8CD** automatic unclogging filter with inlet on the right → EM61000012
- **DIGIFILTER 8CD** automatic unclogging filter with inlet on the left → EM61000020
- **DIGIFILTER 10CD** automatic unclogging filter with inlet on the right → EM61000013
- **DIGIFILTER 10CD** automatic unclogging filter with inlet on the left → EM61000021
- **DIGIFILTER 12CD** automatic unclogging filter with inlet on the right → EM61000014
- **DIGIFILTER 12CD** automatic unclogging filter with inlet on the left → EM61000022



Use of the equipment:

Please read this manual before you start handling, installing or using the machine. Keep the manual safe in a place known to the machine user and maintenance personnel until the machine is finally destroyed.

This manual explains how to transport, install, use and maintain the filter. It cannot in any event replace the experience of the user for operations of varying difficulty.

Before the filter is used by a new user, make sure that they have read this manual and understood all the explanations provided.

For any further information, please feel free to contact the technical departments of **Lincoln Electric**.



Machine guarantee:

This machine is guaranteed for 12 months from the date of purchase.

During the first 12 months of use, defective parts shall be replaced free of charge providing the damage is not the result of improper use of the machine.

The machine guarantee shall cease automatically when the machine is no longer the property of the original buyer.

The terms of validity of the guarantee shall be subject to verification and acceptance by our sales department.

Any nonconforming use that could damage the machine shall not be covered by the guarantee.

For the guarantee to operate, the equipment must be inspected by our technical department.



Assistance:

Lincoln Electric is at your disposal for any work on your equipment.

Please send any requests to the technical department.

HOT LINE (+33) 825 132 132



Display and pressure gauge:

Measurement instruments or displays of voltage, intensity, speed, accuracy etc. are to be considered as indicators, whether they are analogue or digital.



In spite of all the measures applied, invisible residual risks may still remain.

Residual risks can be reduced if the safety instructions are observed, the machine is used as recommended and general service instructions are followed.



This manual and the product with which it is associated refer to the applicable standards in force.



Please read this document carefully before you install, use or maintain the machine. Keep this document in a safe place for future reference. This document must follow the machine described if there is a change in ownership of the machine and accompany it up to demolition.


























REVISIONS

REVISION : B DATE : 09/24

DESCRIPTION	PAGE
Update	8 ; 25 ; 77-78

MEANING OF SYMBOLS

To make this document easier to understand, it contains pictograms with the meanings given below:

	Reading the manual/instructions is mandatory.		Indicates a hazard.
	Mandatory use of safety shoes.		Warning of an electricity risk or hazard.
	Mandatory use of hearing protection.		Warning of a risk or hazard due to an obstacle on the floor.
	Mandatory use of a safety helmet.		Warning of a risk or hazard of falling with a level change.
	Mandatory use of safety gloves.		Warning of a risk or hazard due to suspended loads.
	Mandatory use of safety glasses.		Warning of a risk or hazard due to a hot surface.
	Mandatory use of a safety visor.		Warning of a risk or hazard due to moving mechanical parts.
	Mandatory use of safety clothing.		Warning of a risk or hazard due to a closing movement of mechanical parts of a machine.
	Make sure you clean the working zone.		Warning of a risk or hazard due to laser radiation.
	Mandatory use of breathing protection.		Warning of a risk or hazard due to an obstacle at a height.
	Visual inspection required.		Warning of a risk or hazard due to the presence of a pointed part.
	Indicates a lubrication operation.		Wearers of pacemakers may not be admitted in the designated area.
	Requires maintenance action.		

DECLARATION OF CONFORMITY



LINCOLN ELECTRIC FRANCE SAS
Avenue Franklin Roosevelt
76120 – LE GRAND QUEVILLY

DIGIFILTER UNCLOGGING FILTER

CE DECLARATION OF CONFORMITY

1) CE/EU DECLARATION OF CONFORMITY

Dear customer,

This CE/EU declaration of conformity certifies that the supplied equipment complies with applicable laws and regulations when used in accordance with the enclosed instructions. Any other assembly or modification would void our certification. That is why you are asked to call in the manufacturer for any modifications you wish to make. Failing that, the company responsible for the modification must repeat the certification process. In that case, we would not be liable for the new certificate in any way. Please hand this document over to your technical department or purchasing department for filing.

DESCRIPTION: DIGIFILTER 2CD AUTOMATIC UNCLOGGING FILTER

TYPE: EM61000005 (Inlet on the right)

NUMBER: See name plate

2) This equipment complies with European directives.

2006/42/EC

2011/65/EU

2014/30/EU

3) Based on the following harmonised standards:

- EN ISO 12100: 2010
- EN ISO 13850: 2015
- EN ISO 13857: 2019
- EN ISO 12499
- EN 60204-1: 2008

4) Air Treatment Products Manager, authorised to compile the technical manufacturing document.

Mr Patrick DEGROOTE
LINCOLN ELECTRIC FRANCE SAS
Avenue Franklin Roosevelt
76120 – LE GRAND QUEVILLY

5) The Manufacturer.

LINCOLN ELECTRIC FRANCE SAS
Avenue Franklin Roosevelt
76120 – LE GRAND QUEVILLY

CERGY, 29/10/2019



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DESCRIPTION: DIGIFILTER 4CD AUTOMATIC UNCLOGGING FILTER

TYPE: EM61000010 (Inlet on the right) and EM61000018 (Inlet on the left)

NUMBER: See name plate

2) This equipment complies with European directives.

2006/42/EC

2011/65/EU

2014/30/EU

3) Based on the following harmonised standards:

- EN ISO 12100: 2010
- EN ISO 13850: 2015
- EN ISO 13857: 2019
- EN ISO 12499
- EN 60204-1: 2008

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DESCRIPTION: DIGIFILTER 4CD - LINCUT AUTOMATIC UNCLOGGING FILTER

TYPE: EM61000529 (Inlet on the right)

NUMBER: See name plate

2) This equipment complies with European directives.

2006/42/EC

2011/65/EU

2014/30/EU

3) Based on the following harmonised standards:

- EN ISO 12100: 2010
- EN ISO 13850: 2015
- EN ISO 13857: 2019
- EN ISO 12499
- EN 60204-1: 2008

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DESCRIPTION: DIGIFILTER 6CD AUTOMATIC UNCLOGGING FILTER

TYPE: EM61000011 (Inlet on the right) and EM61000019 (Inlet on the left)

NUMBER: See name plate

2) This equipment complies with European directives.

2006/42/EC

2011/65/EU

2014/30/EU

3) Based on the following harmonised standards:

- EN ISO 12100: 2010
- EN ISO 13850: 2015
- EN ISO 13857: 2019
- EN ISO 12499
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DESCRIPTION: DIGIFILTER 6CD - OPTITOME AUTOMATIC UNCLOGGING FILTER

TYPE: EM61000553 (Inlet on the right)
EM61000753 (Inlet on the right "Black")

NUMBER: See name plate

2) This equipment complies with European directives.

2006/42/EC

2011/65/EU

2014/30/EU

3) Based on the following harmonised standards:

- EN ISO 12100: 2010
- EN ISO 13850: 2015
- EN ISO 13857: 2019
- EN ISO 12499
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DESCRIPTION: DIGIFILTER 8CD AUTOMATIC UNCLOGGING FILTER

TYPE: EM61000012 (Inlet on the right) and EM61000020 (Inlet on the left)

NUMBER: See name plate

2) This equipment complies with European directives.

2006/42/EC

2011/65/EU

2014/30/EU

3) Based on the following harmonised standards:

- EN ISO 12100: 2010
- EN ISO 13850: 2015
- EN ISO 13857: 2019
- EN ISO 12499
- EN 60204-1: 2008

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DESCRIPTION: DIGIFILTER 10CD AUTOMATIC UNCLOGGING FILTER

TYPE: EM61000013 (Inlet on the right) and EM61000021 (Inlet on the left)

NUMBER: See name plate

2) This equipment complies with European directives.

2006/42/EC

2011/65/EU

2014/30/EU

3) Based on the following harmonised standards:

- EN ISO 12100: 2010
- EN ISO 13850: 2015
- EN ISO 13857: 2019
- EN ISO 12499
- EN 60204-1: 2008

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DESCRIPTION: DIGIFILTER 12CD AUTOMATIC UNCLOGGING FILTER

TYPE: EM61000014 (Inlet on the right) and EM61000022 (Inlet on the left)

NUMBER: See name plate

2) This equipment complies with European directives.

2006/42/EC

2011/65/EU

2014/30/EU

3) Based on the following harmonised standards:

- EN ISO 12100: 2010
- EN ISO 13850: 2015
- EN ISO 13857: 2019
- EN ISO 12499
- EN 60204-1: 2008

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CERGY, 29/10/2019

A - IDENTIFICATION

The information below should be provided in all correspondence.



1 - Limits of use of the machine



The limits of use of the machine are provided in the different documents; please review them carefully before starting to use the machine.

For safety reasons, the working area may only be occupied by one individual.

The machine may only be operated by a single person above the age of 18 and trained in operating and use-related risks.

The machine may only be used for filtering cutting fumes; any other use of the machine is forbidden.

Mechanical or electrostatic filtration systems are effective for the filtration of solid particles, but not gaseous particles.

The machine is designed for outdoor discharge.

If the fumes are discharged indoors (not recommended), the workshop in which fumes are discharged must be ventilated so as to not reach the professional exposure limit value of pollutants (fumes and gases)

Field of application:

Filtration of solid particles and dry dust, non-flammable gas, with no risk of explosion.

- Zinc, paper, flour, plant leaves, graphite, aluminium from grinding and sanding etc. and other such dust is to be excluded, because electrostatic discharge or welding splatter would present a risk for those using the filter.
- The air flow through the filter medium must not be at a temperature above 80 °C.
- This machine is not designed for extracting chemicals.
- The choice of equipment is made to suit the pollutants to treat. Extraction at source of the pollutant is only effective if the machine is operating at its nominal power (air flow at the nozzle).

Take particular care to:

- Not obstruct the air outlet of the machine.
- Not introduce external elements into the filter (paper, cloths, cigarette butts etc.)
- Replace the filter medium with new original **Lincoln Electric** medium, which alone can guarantee the filtration characteristics.
- Replace the hoses if they are pierced.
- Regularly clean the metal pre-filter on those machines that have one.

Specific case of chlorine solvents (used for cleaning or degreasing):

- The fumes of such solvents turn into toxic gas when they are subjected to arc radiation.
- Such solvents may not be used with parts to cut, as they cannot be filtered by the DIGIFILTER.

The energy supply must imperatively comply with recommendations.

The customer must supply and install a device for isolating each utility source (electricity, air). The devices must be clearly identified. They must be of the locking type.

The machine is designed for professional use.

Before use, the operator must make sure that there is no risk of collision with personnel.

Before using the machine, make sure that all the guards are in place.

“No climbing on the structure of the machine other than on platforms or gangways designed for that purpose.

To access equipment at heights, the user must use accessing means in accordance with the regulations, such as a safe mobile gangway, an aerial lift etc.”.

Never modify the machine.

The machine is not designed for anchoring lifting equipment.

The use of Personal Protective Equipment (PPE) and work clothing covering the body is mandatory in the work area. Do not wear a tie and keep your hair tied back securely.



While installing the DIGIFILTER:

- Make sure that the emergency stops of the machine are interconnected.
- Check that the fan is rotating in the correct direction.
- Check that ground connections are made correctly.

For any extended absence, the operator must shut off the supply of utilities (electricity and fluids)

Maintenance may only be carried out by experienced personnel who are trained in machine-related risks.

Access to the machine must be left free for maintenance (e.g. no workpiece etc.).

The frequency of such maintenance is indicated for production in one work shift per day (i.e. 8 hours a day).

Consumables (filter) must be changed based on their wear and tear.

Visually inspect the overall condition of the machine and the working area twice a shift, or with every change of production.

The maintenance schedule must absolutely be followed.

We recommend putting in place a traced system for tracking all your maintenance operations.

All maintenance must be carried out by specialised personnel who have read and understood this manual.

Electricity technician

- Qualified operator with the skills for working in normal conditions on electrical components for regulation, maintenance and repair.

Mechanical technician

- Specialised technician authorised to carry out complex and exceptional mechanical operations.

2 - Residual risks

Based on the results of the risk assessment, a few elements have emerged where there was no “technical” solution for eliminating risk or making it negligible.

In spite of all the care that has gone into the designing of our machines, some risk areas remain. To control these risks, the customer must pay particular attention to them, ensure that the instructions are applied and define any additional measures that may be necessary in view of its own internal operating procedures.

Therefore, you will find below a guidance list of residual risks.

Training of operators in safety and in the use of the machine from their operating position will better address these residual risks.

We recommend putting in place workstation instructions that remind users of the presence of residual risks in the working area.

2.1 - Residual risks - General

☛ Environment risk - slipping and/or falling



The working and safety area must be clear of all obstacles.

The working area must be kept clean and cleaned regularly.

The machine must undergo periodic maintenance (see maintenance instructions of each piece of equipment). In particular, cutting dust around the machine must be cleaned.

The operator must pay special attention to cables on the floor.

The operator must use the necessary personal protective equipment (helmet, gloves, safety shoes, mask and work clothing)

While unpacking the machine, the area around the **DIGIFILTER** must be sufficiently large and clear, in order to avoid falls.

Falling from heights:

In order to be protected from falling from heights and for access to high parts, the operator or technician must use access means that comply with applicable standards (e.g. during the assembly, disassembly or maintenance of ducts).

For all work at heights, the use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs and harness) is indispensable.

For all work at heights, the operator must be trained in the use of means for accessing high locations.

☛ Mechanical risk - Impacts, shearing, crushing



The operator may not wear loose clothing or a tie, must have their hair tied back and use personal protective equipment (helmet, gloves, safety shoes, mask and work clothing).

The operator must make sure that nobody else is close to the machine before starting.

The **DIGIFILTER** must not operate when any of the extraction components (pre-filter, filter) are missing.

The operator must make sure that all the machine guards are in place before using it.

Before any work on a part of the extraction system (electrical or other), the system must be disconnected using the disconnecting switch.

Even after taking that precaution, mind the fan components, which can remain in motion due to the windmill effect (blades driven by air flow).

The operator's working position is before the control console.

The machine safety areas must not be crossed.

The operator must be trained in the use of the machine, and all personnel must be aware of residual risks.

Tipping over of the **DIGIFILTER** during installation or moving, presence of a worker under the load.

The extraction system may not be modified.

The weights and positions of the forks are indicated in this document. The handling equipment must be rated for those requirements.

Any change in the machine location must be made by **Lincoln Electric** or personnel trained in handling

The operator must be trained in the use of the machine, and all personnel must be aware of residual risks.

☛ **Mechanical risk - Puncturing or piercing**



The use of personal protective equipment (gloves, safety shoes, work clothing) is indispensable during unpacking and installation.

Such equipment is indispensable while installing the fume extraction ducts (sharp parts).

The operator must be trained in the use of the machine and all personnel must be aware of residual risks.

2.2 - Residual risks during operation or simple maintenance

☛ **Electrical risk - Electric shock or electrocution**



Contact with electrical parts:

Access to the electrical cabinet must be restricted to authorised personnel.

Before any work on a part of the extraction system (electrical or other), the system must be disconnected using the disconnecting switch.

Important: With the optional ICP, cables connected to the fan may remain live for several minutes after the machine has been disconnected.

From time to time, check that the machinery and its electrical accessories - connectors, flexible cables and extension cords - are correctly insulated and connected.

Work for maintaining and repairing insulating ducts and enclosures may not be carried out in a haphazard manner.

- All repairs are to be carried out by specialists, or better yet, defective accessories should be replaced.
- Regularly check that the electrical connections are tight, with no heating

The use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs, fire-resistant work clothing) is indispensable.

The operator must be trained in the use of the machine, and all personnel must be aware of residual risks.

☛ **Ergonomics risk - Fatigue**

Changing/emptying containers:

The operator must use appropriate handling means.

The operator must be trained in the use of the machine, and all personnel must be aware of residual risks.

☛ **Material and product risks - Poisoning**



Emission of fumes/dust:

Important: while changing or cleaning the filter, the extraction system must be disconnected from the electricity source. The application of an emergency stop is not sufficient. Indeed, unclogging can start away from fan operation.

The use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs, work clothing) is indispensable.

The efficiency of the extraction system must be inspected regularly and corrected if it is not adequate (e.g. by cleaning the pre-filter, changing the filters, inspecting all piping).

Any fans placed in a circuit in which the air is laden with dust must be cleaned from time to time. That is because the turbine may be fouled and become unbalanced, leading to increased noise and premature wear and tear of bearings. Maintenance is required at least after every six months, depending on the type of dust treated.

The fan is an essential element of your extraction system.

Incorrect operating or inadequate maintenance could make the operator less safe. That is why the fan must be maintained in perfect condition.

Your installation has been selected for a specific application. The turbine is characterised by an operating point based on extraction speed (speed of air in the piping) and head loss.

In accordance with the regulations of CARSAT and INRS, the system must be inspected from time to time to make sure that it continues to comply with its reference values.

Used filters and dust in the containers must be placed in appropriate locations and then reprocessed in accordance with the standards of the country in which the system is installed

The operator must be trained in the use of the machine, and all personnel must be aware of residual risks.

☛ **Mechanical risk - Puncturing or piercing**



Contact with a part of the pneumatic circuit that is under pressure

Before any work on the pneumatic circuit, the pneumatic supply must be switched off and the circuit must be purged (Caution! There is a 22-litre reserve) to avoid any accidental lashing of the hoses.

The use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs) is indispensable.

The operator must be trained in the use of the machine and all personnel must be aware of residual risks.

☛ **Thermal risk - Burns**



Part of the body in contact with a hot component (while emptying containers, changing filters)

The use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs) is indispensable.

The operator must be trained in the use of the machine and all personnel must be aware of residual risks.

☛ **Noise risk - Fatigue**



Process noise

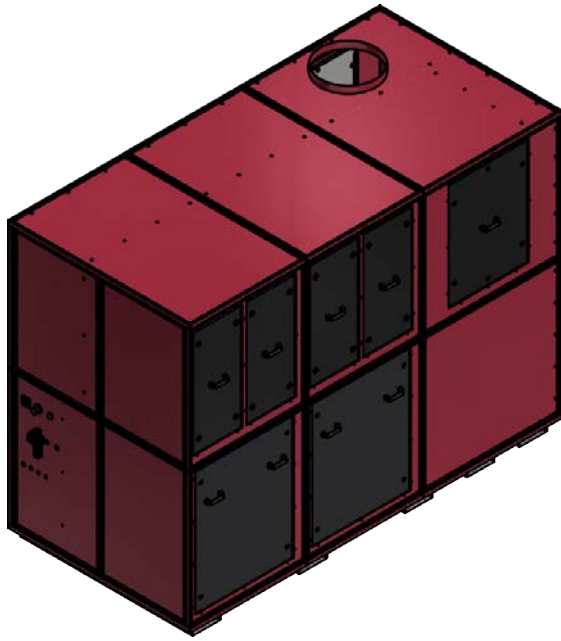
The use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs) is indispensable.

The operator must be trained in the use of the machine and all personnel must be aware of residual risks.

1 - Overall description



For your safety and optimum performance, please read this manual carefully before using the filter.



The sandwich panel and metal structure design optimises the weight and strength of the machine, while guaranteeing sealing against the fine dust treated. It can be put in place easily thanks to its monobloc construction, which helps minimise noise. The filter is managed by a PLC associated with a 5.7" HMI screen. That helps monitor the operating condition, maintain the quality of internal filtering elements and ensure an effective and continuous extraction rate.

The machine quality allows us to offer speedy deliveries, for a low cost of transport and installation. The system takes up little floor space and can be removed at any time.

Benefits:

- The operating cycle is managed by a PLC associated with a 5.7" HMI screen.
- Very high unclogging efficiency - Self-cleaning of cartridges during operation.
- High filtration efficiency thanks to filter cartridges with PTFE membrane. /Low noise.
- Three operating modes are possible: Manuel – Weekly clock – Automatic.
- Standard cleaning after use (Offline mode).
- Simple installation.
- Compact design.
- Low maintenance that can be scheduled from the human machine interface (HMI) screen.

Delivery: The unit is supplied as a single unit including the fan and the filtration components.

2 - Part numbers

DIGIFILTER 2CD	
DIGIFILTER 2 CD Inlet to the right	EM61000005
Additional galvanised top for outdoor assembly	EM61000050
Additional vertical discharge for outdoor assembly	EM61000065

DIGIFILTER 4CD	
DIGIFILTER 4 CD Inlet to the right	EM61000010
DIGIFILTER 4 CD Inlet to the left	EM61000018
DIGIFILTER 4 CD LINCUT Inlet to the right	EM61000529
Additional ICP – Variable frequency drive: Air flow variation	EM61000026
Additional soundproofing: Soundproofing foam and reinforced door	EM61000034
Additional rotary discharger and bulk bag	EM61000042
Additional galvanised top for outdoor assembly	EM61000051
Additional vertical discharge for outdoor assembly	EM61000066

DIGIFILTER 6CD	
DIGIFILTER 6 CD Inlet to the right	EM61000011
DIGIFILTER 6 CD Inlet to the left	EM61000019
DIGIFILTER 6 CD OPTITOME Inlet to the right	EM61000553
DIGIFILTER 6 CD «black»	EM61000753
Additional ICP – Variable frequency drive: Air flow variation	EM61000027
Additional soundproofing: Soundproofing foam and reinforced door	EM61000035
Additional rotary discharger and bulk bag	EM61000043
Additional galvanised top for outdoor assembly	EM61000052
Additional vertical discharge for outdoor assembly	EM61000067

DIGIFILTER 8CD	
DIGIFILTER 8 CD Inlet to the right	EM61000012
DIGIFILTER 8 CD Inlet to the left	EM61000020
Additional ICP – Variable frequency drive: Air flow variation	EM61000028
Additional soundproofing: Soundproofing foam and reinforced door	EM61000036
Additional rotary discharger and bulk bag	EM61000044
Additional galvanised top for outdoor assembly	EM61000053
Additional vertical discharge for outdoor assembly	EM61000068

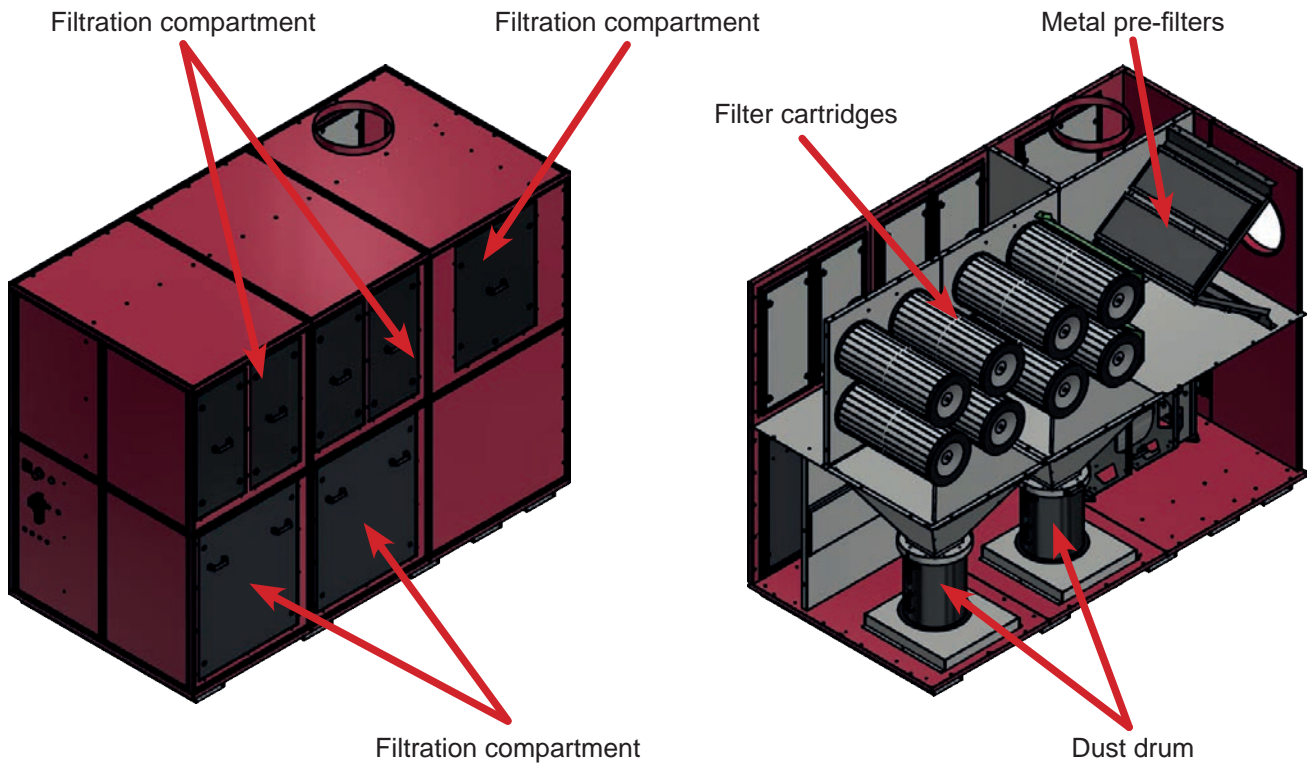
DIGIFILTER 10CD	
DIGIFILTER 10 CD Inlet to the right	EM61000013
DIGIFILTER 10 CD Inlet to the left	EM61000021
Additional ICP – Variable frequency drive: Air flow variation	EM61000029
Additional soundproofing: Soundproofing foam and reinforced door	EM61000037
Additional rotary discharger and bulk bag	EM61000045
Additional galvanised top for outdoor assembly	EM61000054
Additional vertical discharge for outdoor assembly	EM61000069

DIGIFILTER 12CD	
DIGIFILTER 12 CD Inlet to the right	EM61000014
DIGIFILTER 12 CD Inlet to the left	EM61000022
Additional ICP – Variable frequency drive: Air flow variation	EM61000030
Additional soundproofing: Soundproofing foam and reinforced door	EM61000038
Additional rotary discharger and bulk bag	EM61000046
Additional galvanised top for outdoor assembly	EM61000055
Additional vertical discharge for outdoor assembly	EM61000070

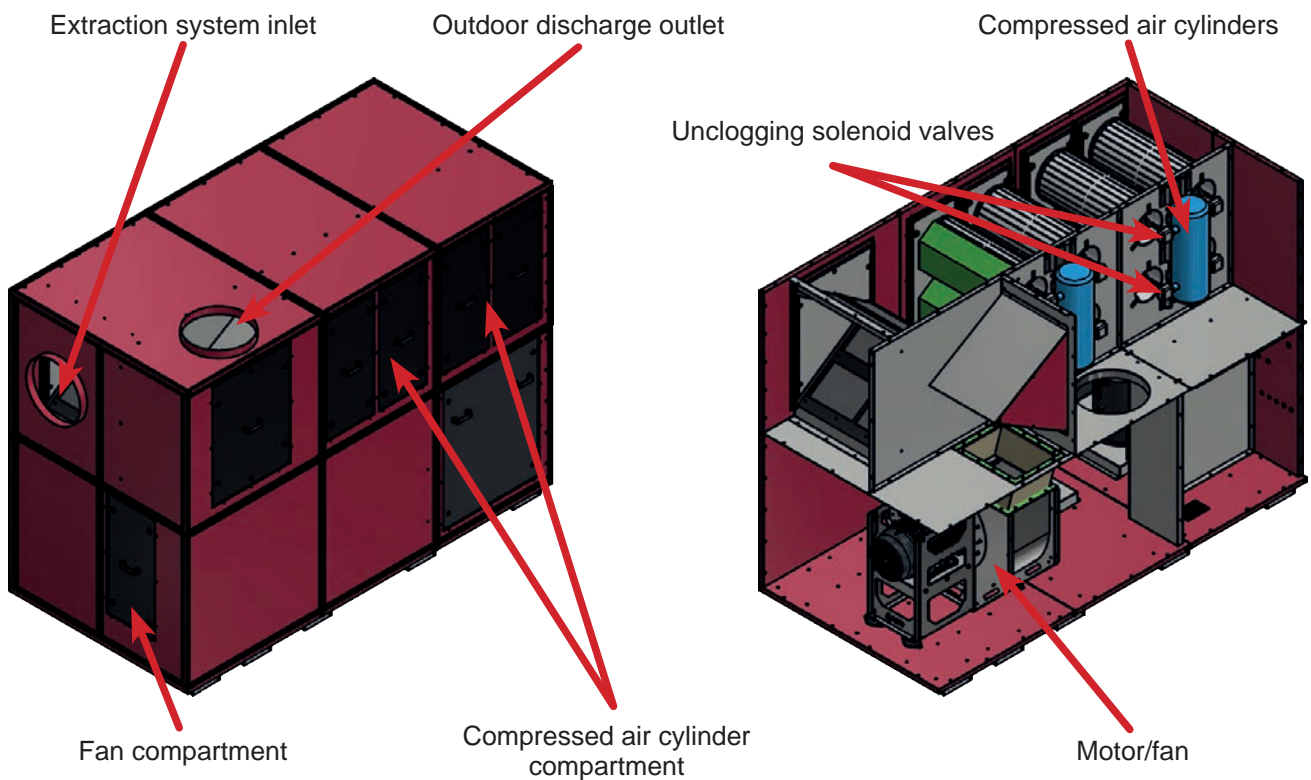
3 - Technical description

3.1 Composition of the unit

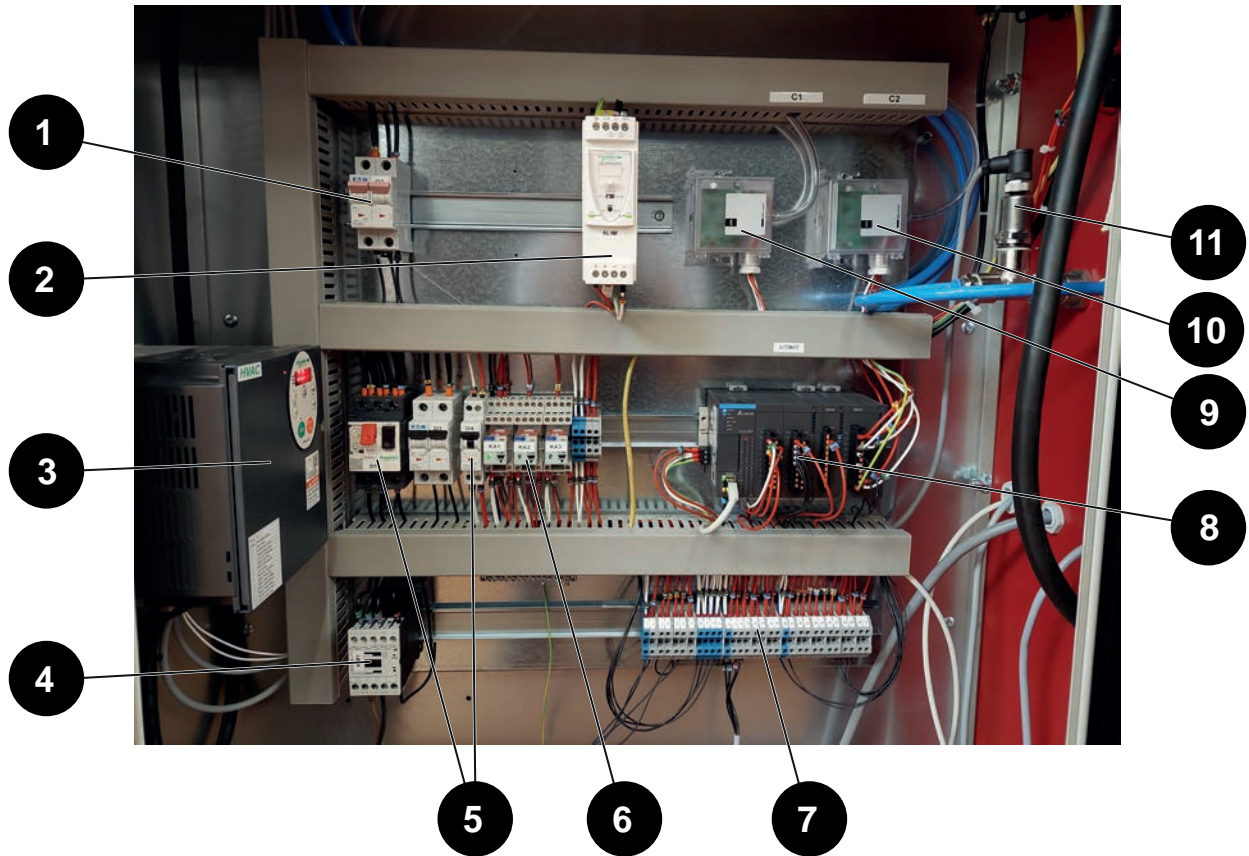
Filtration components



Extraction components

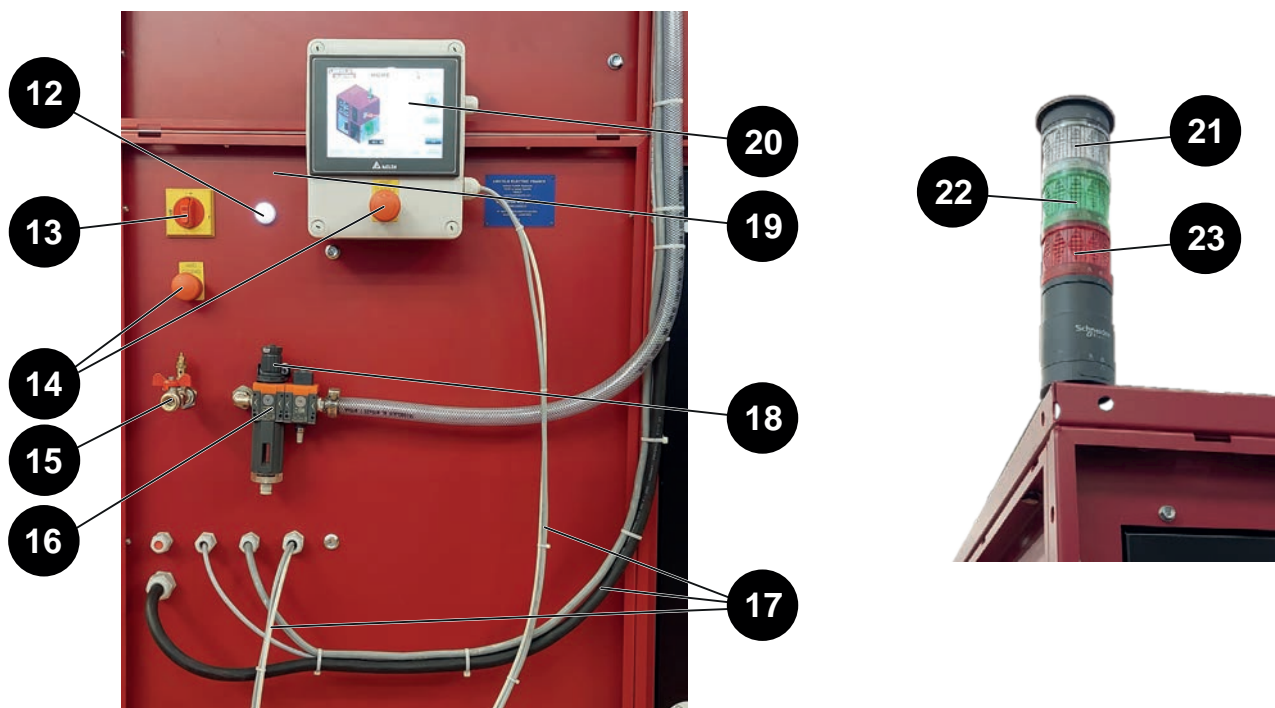


3.2 Composition of the electrical cabinet



1	Circuit breaker
2	400/24V power supply
3	Variable frequency drive
4	Motor contactor, KM1
5	Circuit breakers
6	Relay
7	Connecting terminal block
8	Programmable logic controller
9	C1 - System vacuum switch
10	C2 - Fan vacuum switch
11	Compressed air pressure switch

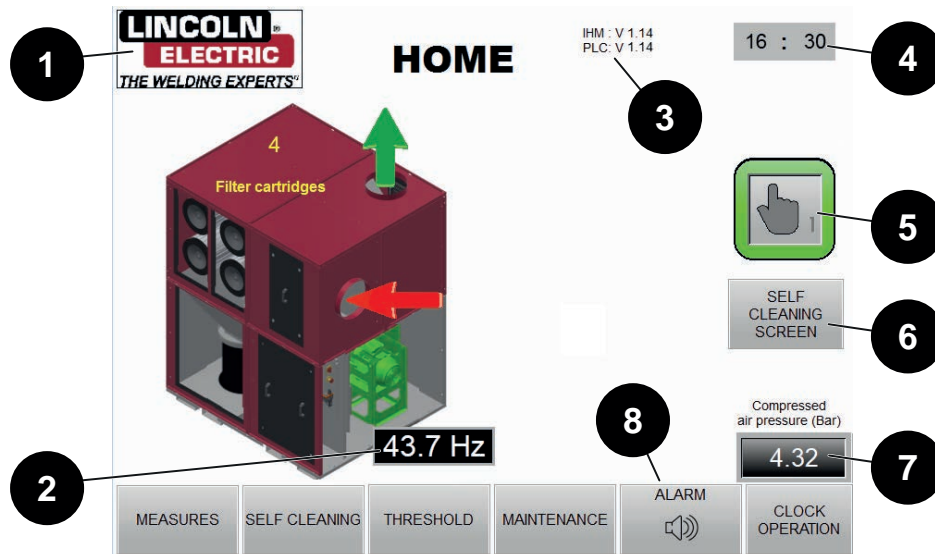
3.3 Description of external unit components



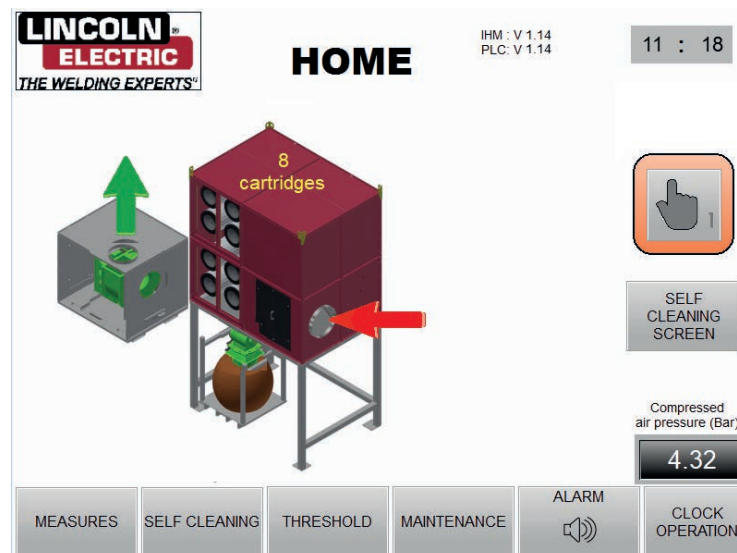
12	Power on indicator
13	Main disconnecter
14	Emergency stops
15	Compressed air purge
16	Oil separator pressure reducer filter Ø 16 mm connection
17	HMI interface cables and power cables to be separated from each other
18	Compressed air pressure adjustment
19	Identification plate
20	Control HMI interface
21	White: Filter live
22	Green: Filter operating
23	Red: Filter fault --> Check the error messages on the Alarms page of the HMI; or on the variable drive screen inside the electrical cabinet

4 - Description of the HMI screen: Home page

Example for a DIGIFILTER 4CD with dust containers

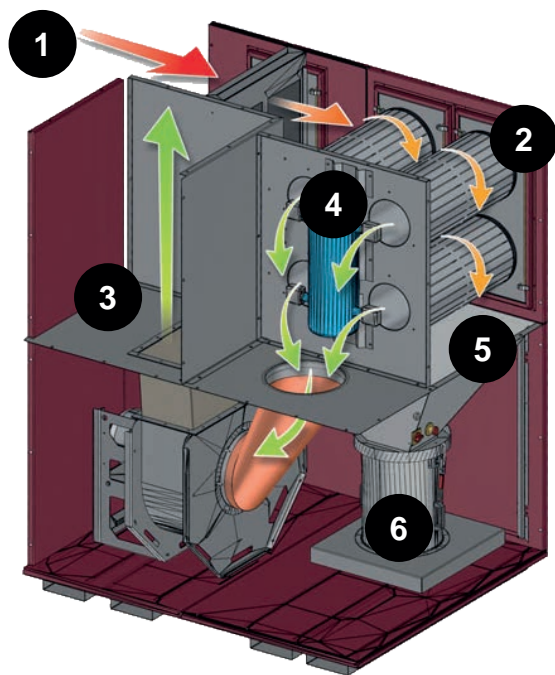


Example for a DIGIFILTER 8CD with rotary discharger



1	Access to configuration settings
2	Operating frequency
3	Program versions for the HMI and PLC
4	Date and time setting
5	Operating mode: <ul style="list-style-type: none"> • Manual • Weekly clock • Automatic
6	Unclogging screen (circled in green if active)
7	Compressed air pressure
8	Fault management

5 - Operating principle



Operating principle of the unlogging filter

1	At the unit inlet, polluted air flows through metal pre-filters that keep incandescent particles out of the filtration area.
2	The polluted air is then distributed in the filtration area and flows through filter cartridges that purify the air up to 99.9%.
3	The filtered air is driven out into the expansion chamber and discharged outdoors
4	The filter cartridges are unlogged by a strong surge of air inside the cartridges
5	The dust driven out of the cartridges falls into the recovery hopper
6	The waste is removed using the dust containers*

Depending on the regulations in the relevant country, the filtered air may be recycled in the workshop.

If indoor recycling is not possible, such as in France, a heat exchanger may be put in place to reduce energy costs relating to the replacement of the expelled air. The filtered air could thus be put to even better use.

* as an option, rotary dischargers with bulk bags may be installed instead of dust containers.

The filter cartridges are replaced from the polluted air side of the filter, which rules out any pollution on the clean air side by dust remaining on the cartridges. (See instructions for the replacement of filter cartridges).

5.1 Features

The **DIGIFILTER** extraction unit has a touch screen HMI, which, combined with a PLC, makes it possible to gather all the controls and the display of values in real time.

The unit may be controlled according to three operating modes: manual/automatic/clock.

Variable flow operation (system with multiple sensors), or with flow regulation (cutting table application).

Real-time monitoring of the system vacuum at the extraction unit inlet, the pressure difference due to fouling of the filter cartridges, fan power consumption, fan operating frequency, and compressed air pressure of unlogging cylinders.

Programming of a weekly working time. Management of the maintenance of the extraction unit with information about the number of hours of use, filter cartridge replacement, fan maintenance, emptying frequency of dust containers.

5.2 Specificities of the DIGIFILTER extraction unit

ICP function

For smart, cost-effective and environmentally-friendly use, the **DIGIFILTER** may be fitted with an ICP function. This function allows finer and more advanced management of the working of the extraction unit, particularly with:

- a variable frequency drive,
- the possibility to regulate the extraction rate in relation to a fixed setpoint,
- the possibility to operate with a variable rate depending on the number of open sensors,
- real-time display of the main system vacuum settings at the filter inlet, filter cartridge pressure difference, fan power consumption, operating frequency etc.

Saturation alarm

The **DIGIFILTER** is fitted with an alarm system that monitors the filter saturation status. The pressure difference through the cartridges is continuously monitored. When the boundary value of the pressure difference is reached (700Pa by default), a safety indicator on the HMI screen is displayed and a fault is recorded. In that case, the metal pre-filters and filter cartridges must imperatively be inspected.

Process efficiency control alarm associated with the ICP function

The **DIGIFILTER** continuously monitors the vacuum at the filter inlet and outlet. The information measured is displayed in Pascal on the Measurements screen of the HMI. If the permitted values are exceeded, the screen displays a min or max process efficiency fault and the Out of Order sign. That major malfunction must be remedied to retain the efficiency of the **DIGIFILTER**.

Online cleaning at a programmed threshold

The pressure difference through the cartridges is continuously monitored. When the difference exceeds the permitted negative pressure limit, the cartridge cleaning cycle starts. Once cleaning is complete, a check validates or not the negative pressure after cleaning. If the vacuum drops below the boundary value, the online unclogging cycle stops; otherwise, a new cleaning cycle restarts.

This cycle makes it possible to extend the life of cartridges. When the cycle no longer makes it possible to achieve the normal operating value, that means that the cartridges must be changed imperatively.

The benefits of this mode are:

- Reduced cartridge wear and tear
- Reduced air consumption
- Reduced maintenance
- Constant head loss in the filter
- Reduced noise

Offline cleaning

This system makes it possible to clean the cartridges when the fan stops, and allows deep regeneration of cartridges. The number of cycles can be programmed in the Unclogging page of the HMI. A number of 1 to 9 cycles is recommended.

This type of cleaning is required with all applications and guarantees the proper working of the installation. By back blowing the cartridges with an air flow and shock wave combination, most of the particles are removed from the cartridges and these fall into the recovery hopper and dust drum.

5.3 Unclogging operating cycle chart

Filter cartridge unclogging operates with the help of two digital vacuum sensors, C1 and C2. For the proper working of the extraction unit and for maintaining satisfactory extraction values, it is essential for the cleaning (unclogging) cycle to be carried out.

Two operating modes can be selected for the online unclogging of cartridges (with the fan operating):

- **Permanent online unclogging (no threshold):**
Online unclogging cycle when the fan is operating.
Online unclogging is permanent and is timed in accordance with the settings on the Unclogging page of the HMI.
- **Online unclogging with threshold:**
Online unclogging cycle during fan operation according to a preset saturation threshold (700 Pa). When the saturation threshold is reached, the Online unclogging cycle starts. The unclogging time always depends on the number of cycles set; however, when the cycle is complete, if the head loss of the cartridges has not dropped below the saturation level, a new cycle starts.

Offline unclogging:

Offline unclogging cycle after the fan has stopped.

Only cycle for the effective cleaning of filter cartridges because it is carried out with the fan halted.

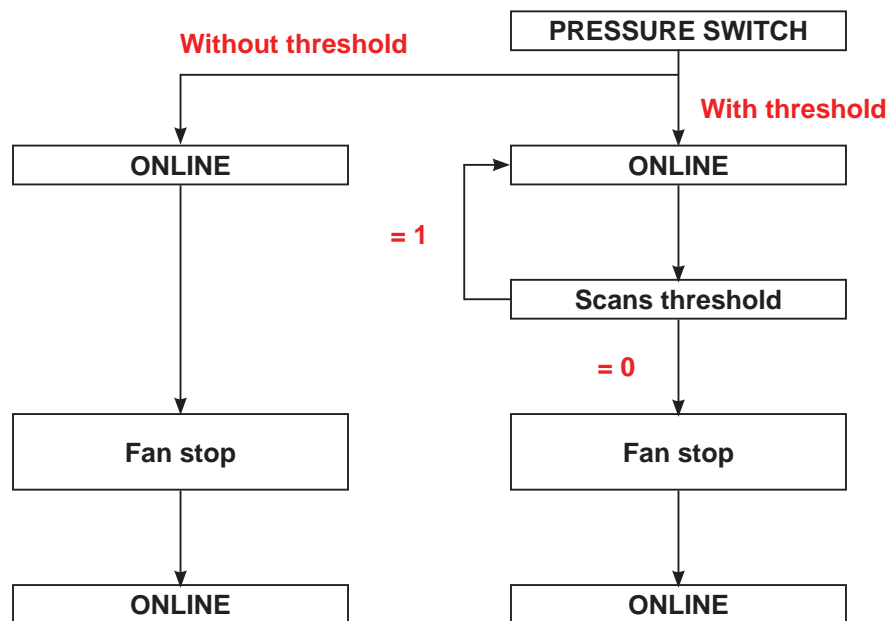
It allows the dust to fall into the dust container by gravity.

The offline unclogging time depends on the number of filter cartridges and the number of cycles, as set on the Unclogging page of the HMI.



The offline unclogging cycle must necessarily be followed.

- The extraction unit must not be shut down before the end of the cycle.
- The system compressed air must not be switched off before the end of the cycle.

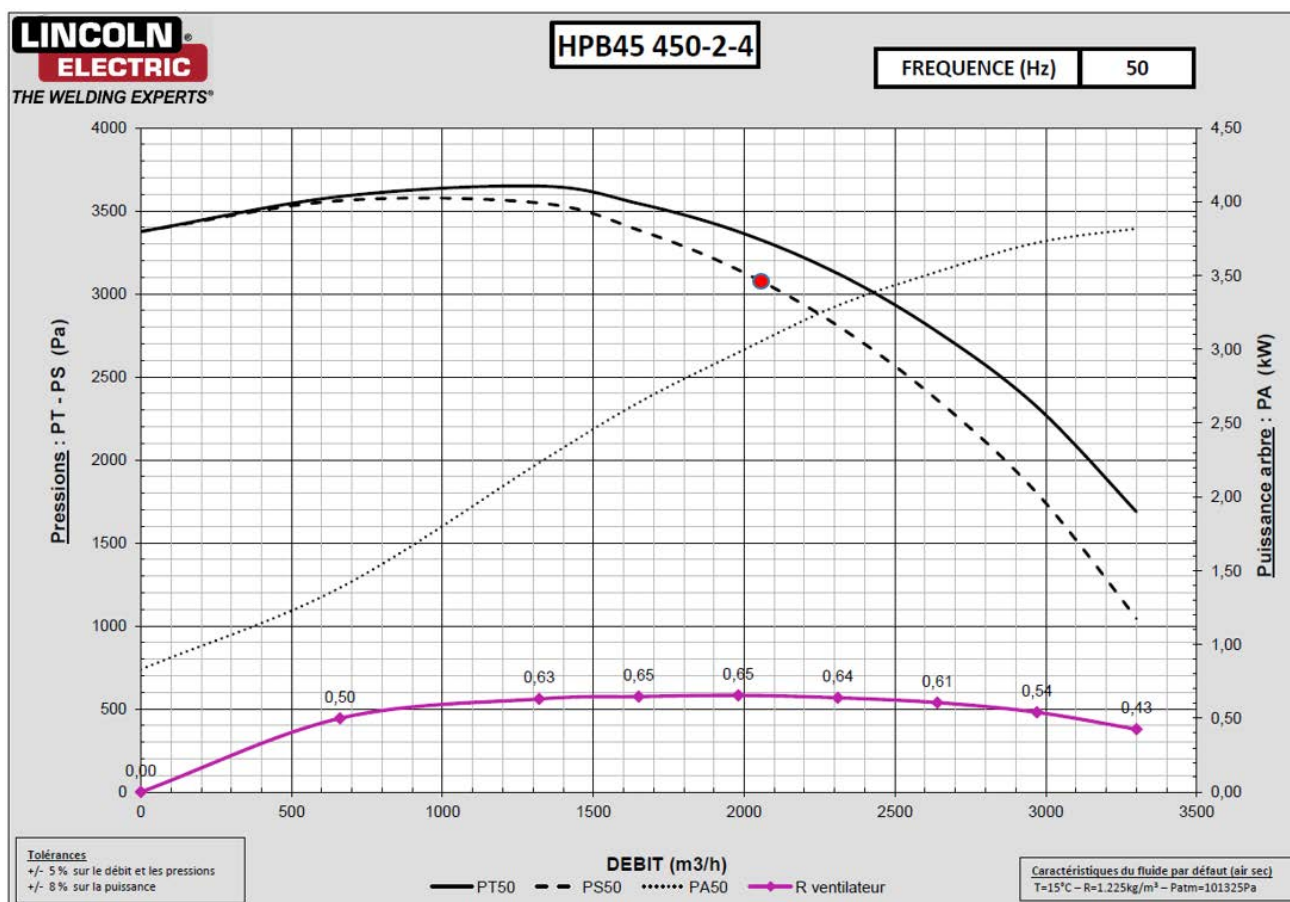


6 - Fan specifications

6.1 DIGIFILTER 2CD

Type	Centrifugal fan, PRCU 450 – 2 – 4
Power	4 kW
Operating point	2050 m ³ /h at 3100 Pa at 50 Hz
Voltage	400V/230V
Frequency	50 Hz
Rotation speed	2900 rpm
Noise	78.3 dB (free field)
Fan inlet Ø	250 mm

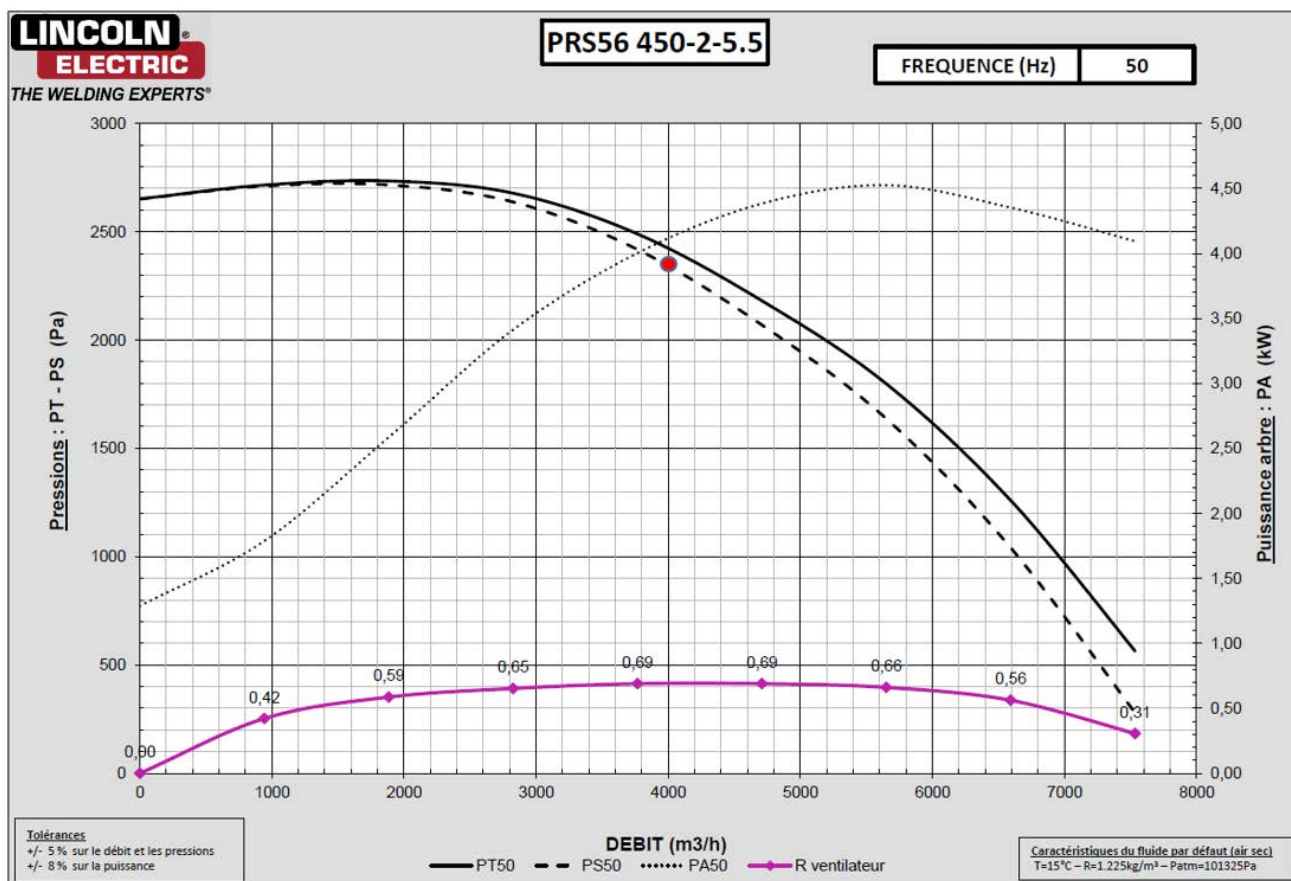
Fan, PRCU 450 – 2 – 4 kW



6.2 DIGIFILTER 4CD

Type	Centrifugal fan, PRCU 450 – 2 – 5.5
Power	5.5 kW
Operating point	4000 m ³ /h at 2400 Pa at 50 Hz 4000 m ³ /h at 2900 Pa at 55 Hz
Voltage	400V/230V
Frequency	50 Hz
Rotation speed	2900 rpm
Noise	70.4 dB (free field)
Fan inlet Ø	355 mm

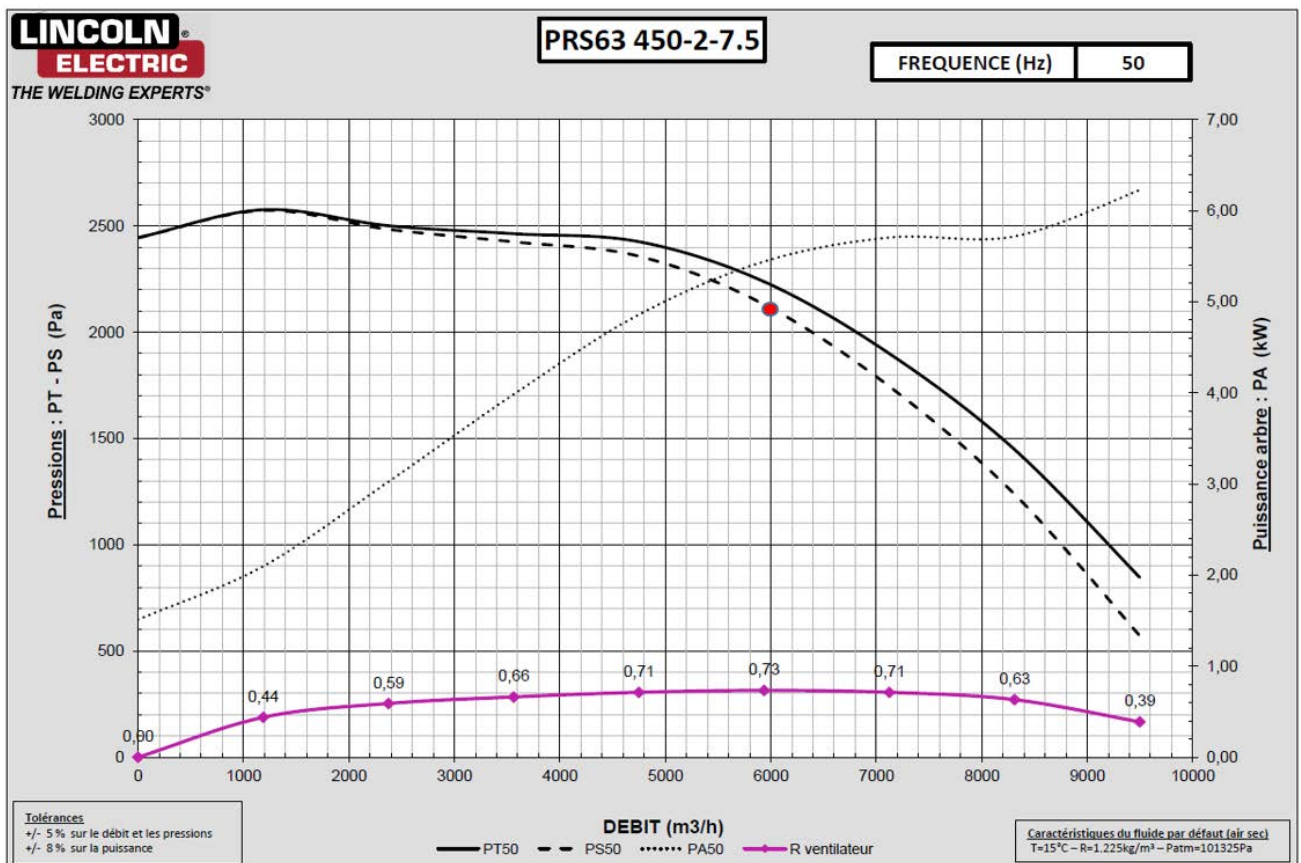
Fan, PRS56 450 - 2 - 5.5 kW



6.3 DIGIFILTER 6CD

Type	Centrifugal fan, PRCU 450 – 2 – 7.5
Power	7.5 kW
Operating point	6000 m ³ /h at 2100 Pa at 50 Hz 6000 m ³ /h at 2700 Pa at 55 Hz
Voltage	400V/230V
Frequency	50 Hz
Rotation speed	3000 rpm
Noise	74 dB (free field)
Fan inlet Ø	400 mm

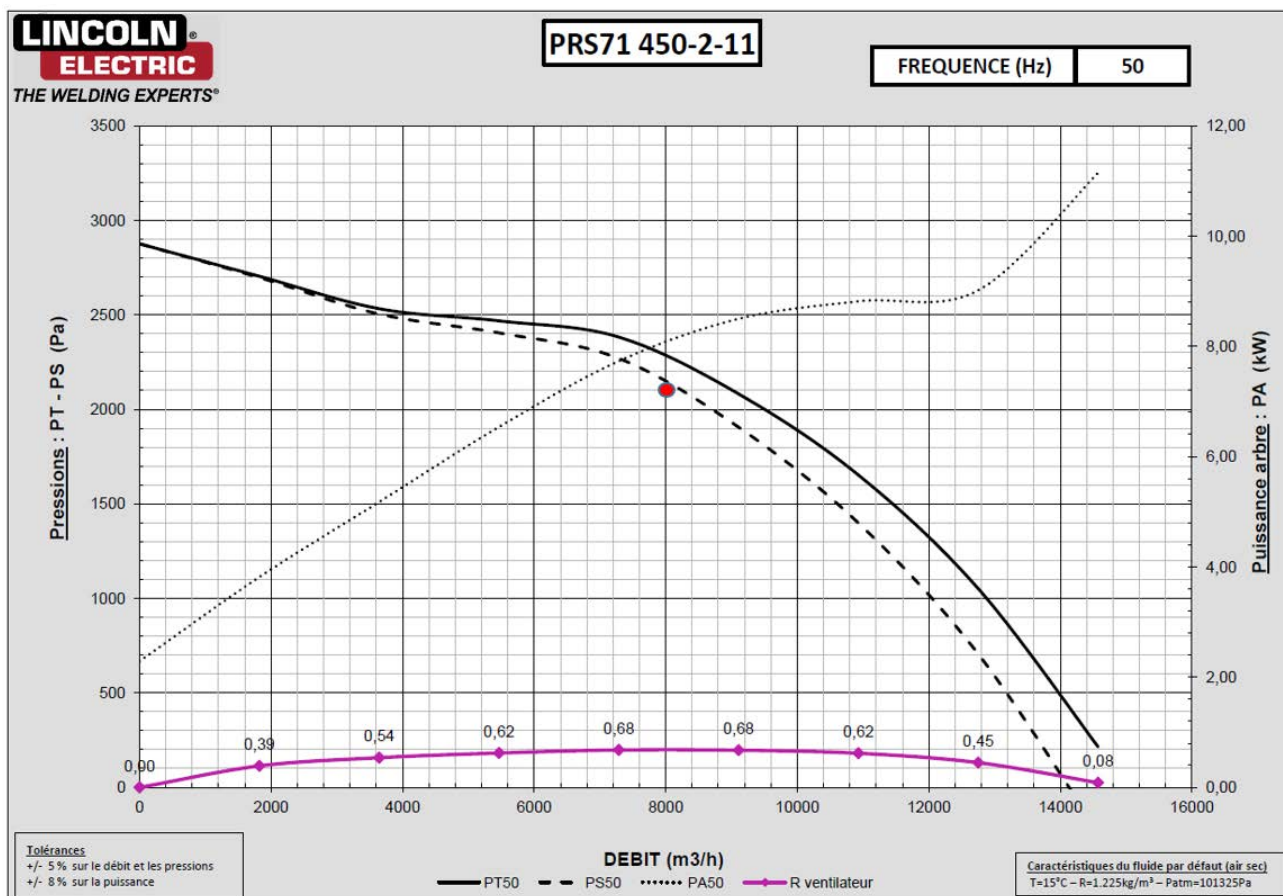
Fan, PRS63 450 - 2 - 7.5 kW



6.4 DIGIFILTER 8CD

Type	Centrifugal fan, D 450 – 2 – 11
Power	11 kW
Operating point	8000 m ³ /h at 2100 Pa at 50 Hz 8000 m ³ /h at 2800 Pa at 55 Hz
Voltage	400V/230V
Frequency	50 Hz
Rotation speed	3000 rpm
Noise	74 dB (free field)
Fan inlet Ø	450 mm

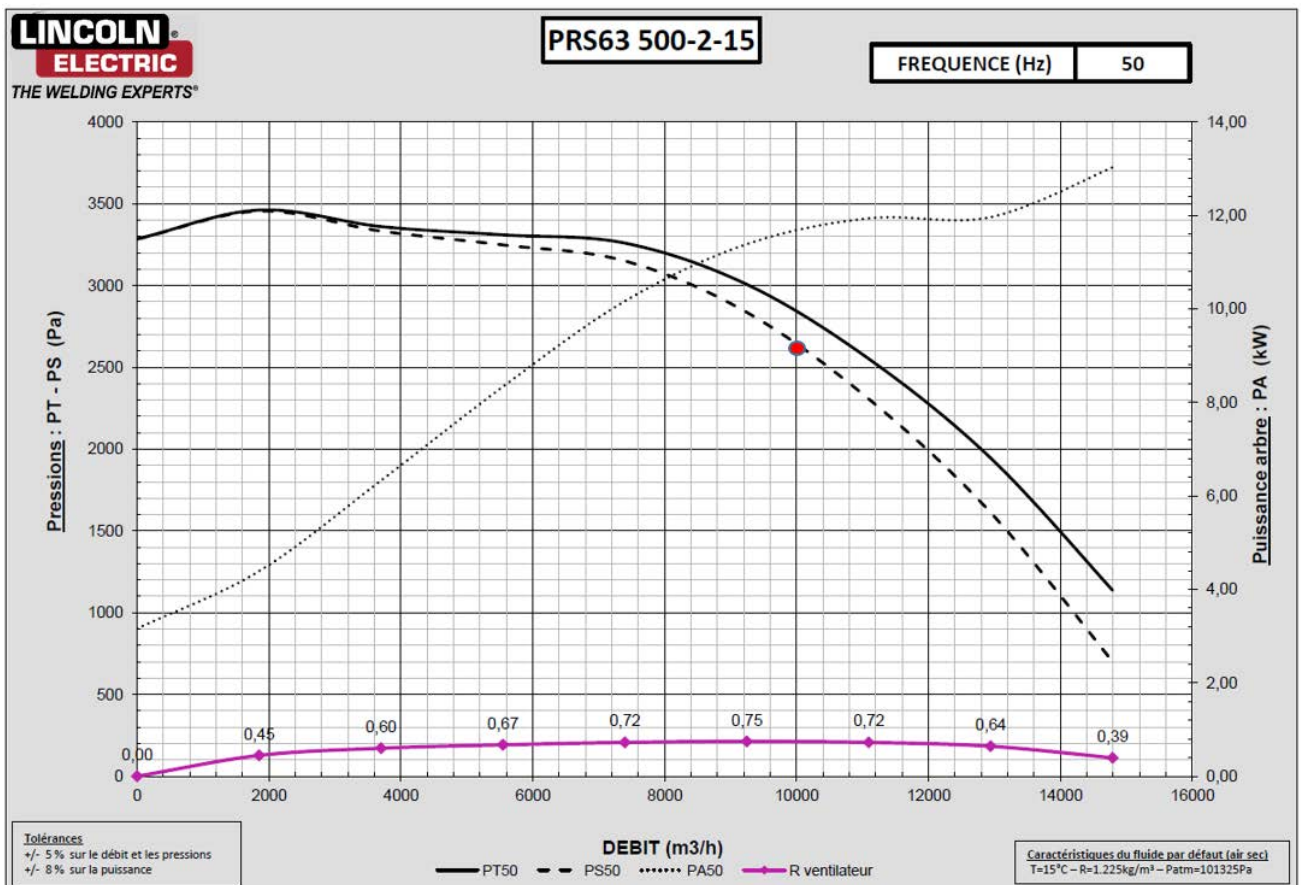
Fan, PRS71 450-2-11 kW



6.5 DIGIFILTER 10CD

Type	Centrifugal fan, PRS63 – 2 poles
Power	15 kW
Operating point	10000 m ³ /h at 2600 Pa at 50 Hz 10000 m ³ /h at 3200 Pa at 55 Hz
Voltage	400V
Frequency	50 Hz
Rotation speed	2900 rpm
Noise	84 dB (free field)
Fan inlet Ø	500 mm

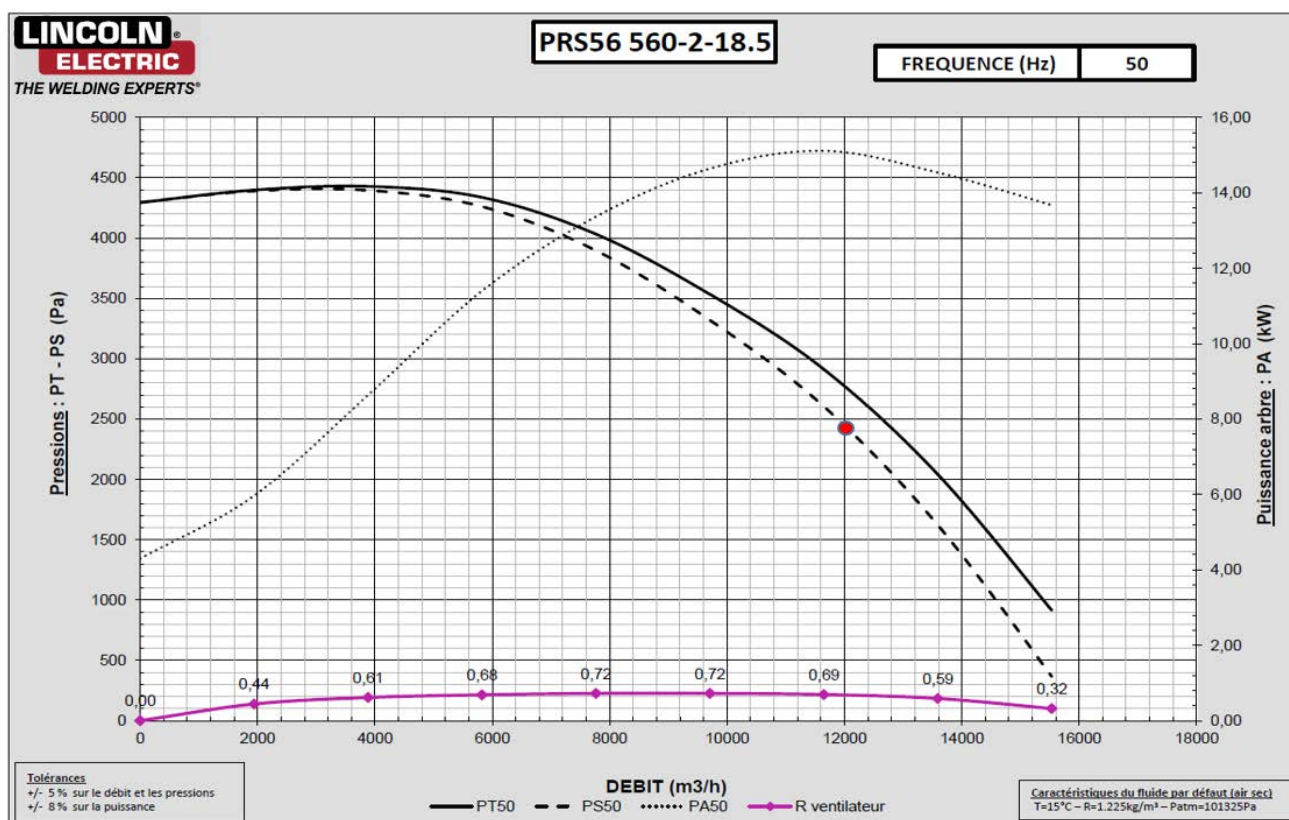
Fan, PRS63 500 - 2 - 15 kW



6.6 DIGIFILTER 12CD

Type	Centrifugal fan, PRS56 – 2 poles
Power	18.5 kW
Operating point	12000 m ³ /h at 2400 Pa at 50 Hz 12000 m ³ /h at 3000 Pa at 55 Hz
Voltage	400V
Frequency	50 Hz
Rotation speed	1450 rpm
Noise	86 dB (free field)
Fan inlet Ø	560 mm

Fan, PRS56 560 - 2 - 18.5 kW



1 - Installation conditions



The machine must be located in accordance with safety standards to keep personnel safe.



Arrangement of cables and hoses

The customer must provide a means to support and protect cables and flexible hoses from mechanical, chemical or thermal damage.

2 - Floor preparation

Installing the **DIGIFILTER** does not require any particular floor preparation; however, we recommend the use of concrete, coated material or stabilised pebbles that keep the machine sufficiently stable.

The flatness over the whole of the **DIGIFILTER** may not exceed 0.5%.

Concrete screed in a single stretch made at least 21 days before (standard BAEL 93). The thickness of the screed and its reinforcement are given for guidance, and must be verified depending on the characteristics of the floor.

Single concrete strip. 20 Mpa (350 kg/m³) concrete with metal reinforcement.

3 - Assembly

The **DIGIFILTER** filter is supplied in a single piece; you only need to place it in the desired location in the workshop or outside the building.

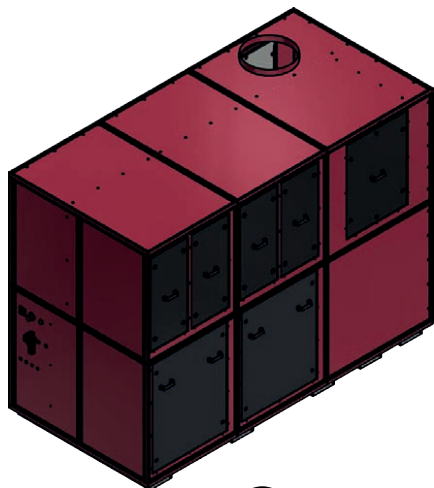
The filter can be handled with a lift truck thanks to the fork spaces provided under the frame.



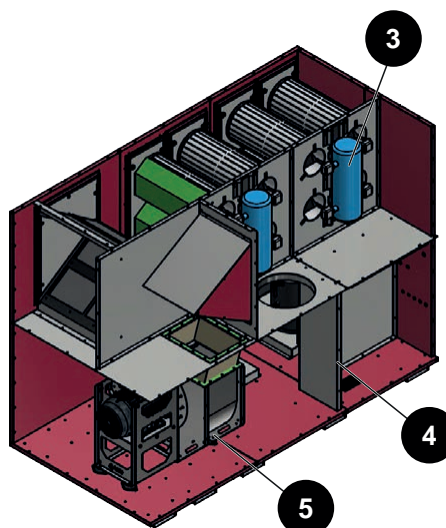
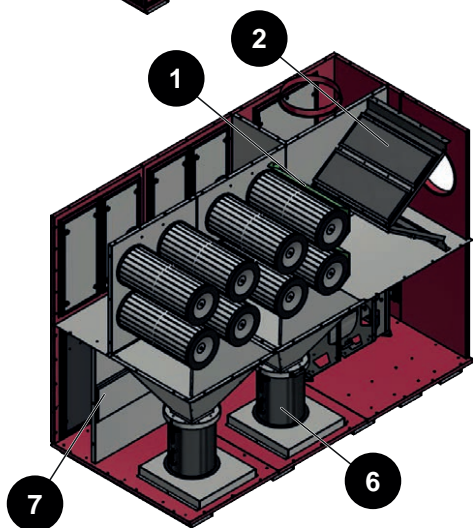
4 - Dimensions and location

- The clearance required for opening the doors for maintenance work is 600mm.
- A 1000 mm technical area over the perimeter of the unit must be provided, particularly in the filter change area.
- Connection of the compressed air pressure reducer filter Ø16mm.

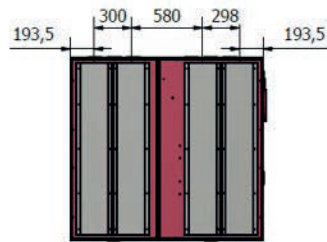
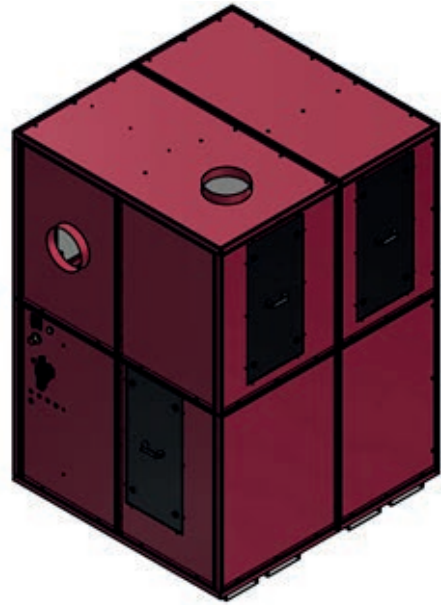
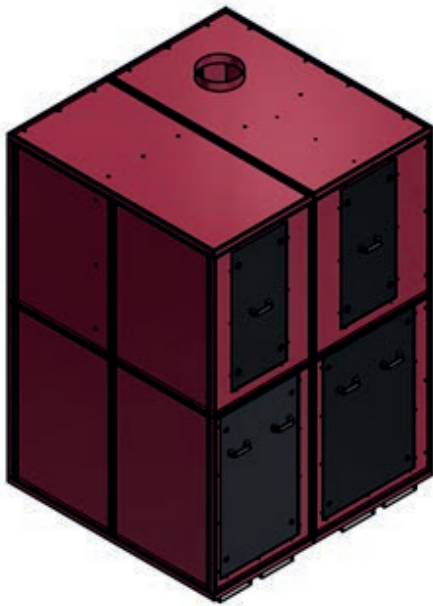
Example of a DIGIFILTER 8CD



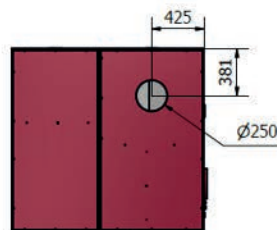
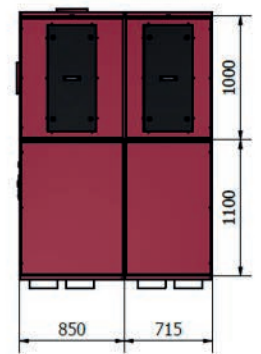
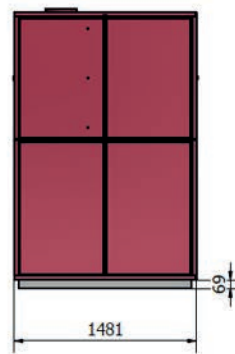
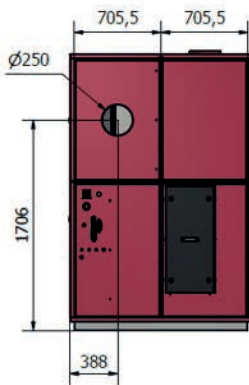
1	Deflector
2	Pre-filter, 800x295x3
3	Compressed air cylinder
4	Cabinet compartment isolated from the filter with air grating below
5	Centrifugal fan
6	Dust container (new version)
7	Cabinet grating + variable drive



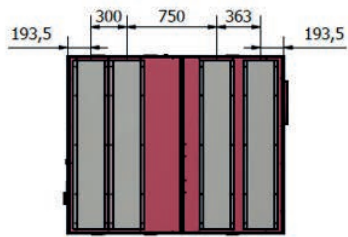
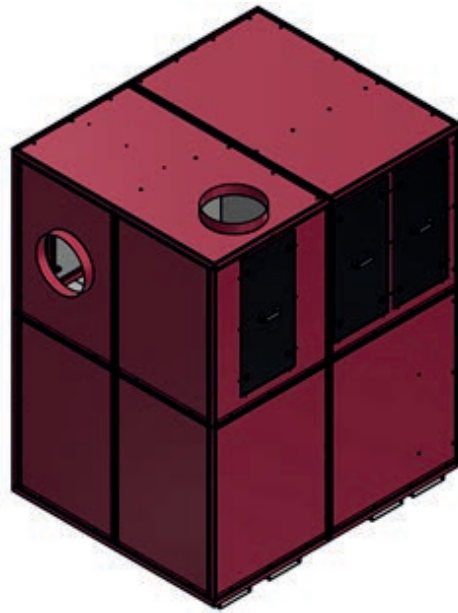
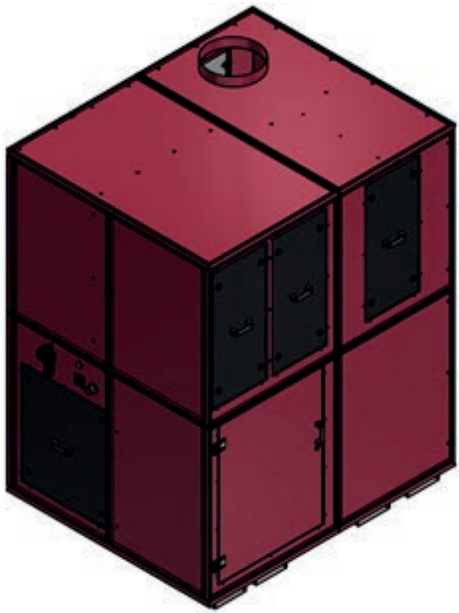
4.1 DIGIFILTER 2CD



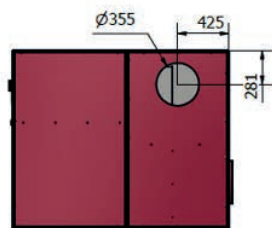
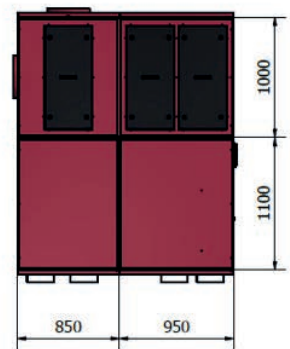
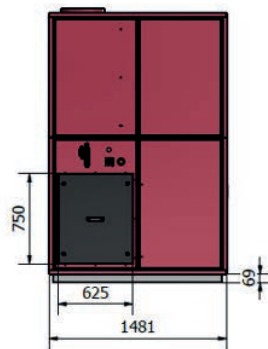
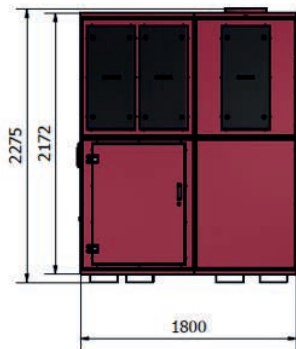
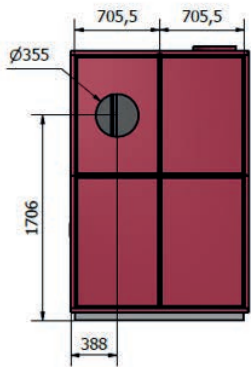
System inlet diameter	250 mm
System outlet diameter	250 mm
Fork centre distance	580 mm
Weight of unit	900 Kg



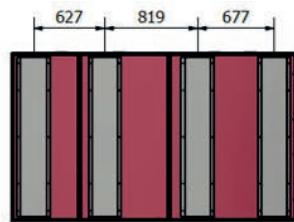
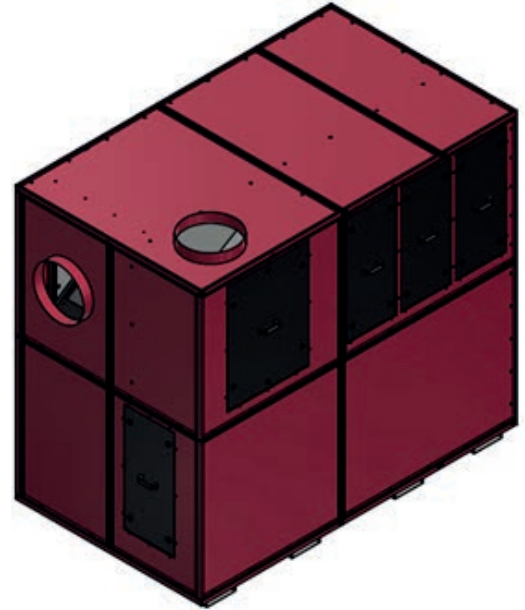
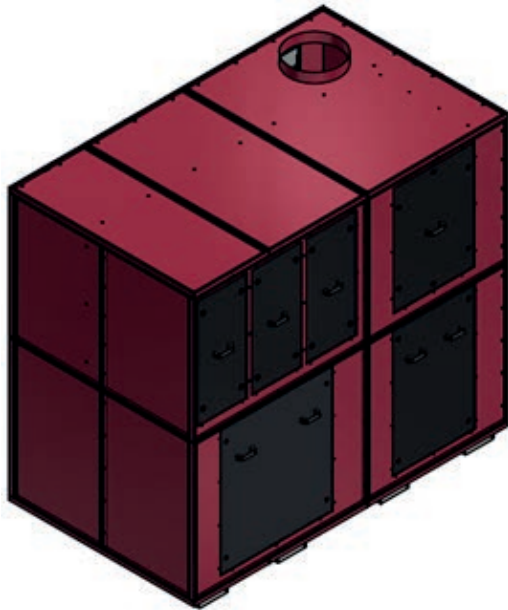
4.2 DIGIFILTER 4CD



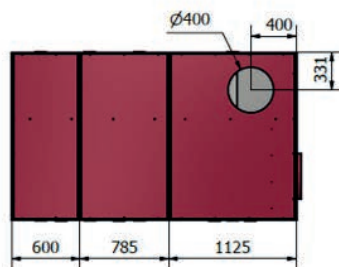
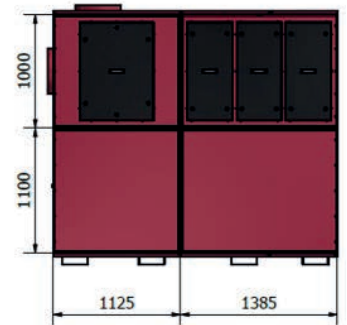
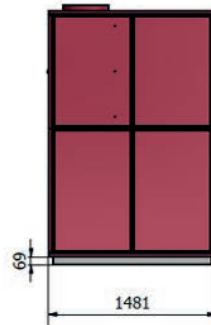
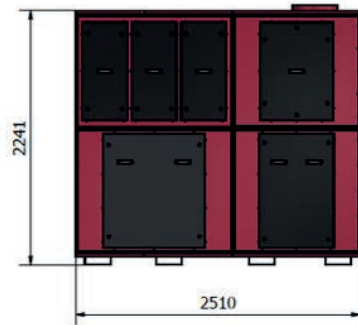
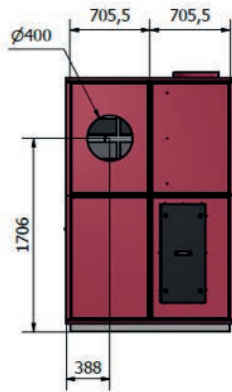
System inlet diameter	355 mm
System outlet diameter	355 mm
Fork centre distance	750 mm
Weight of unit	1050 Kg



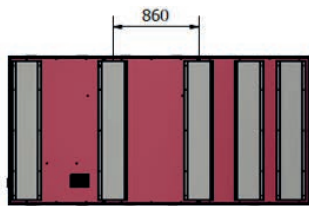
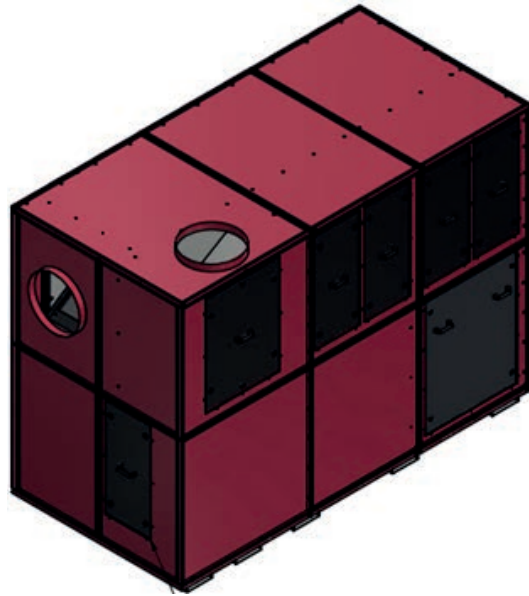
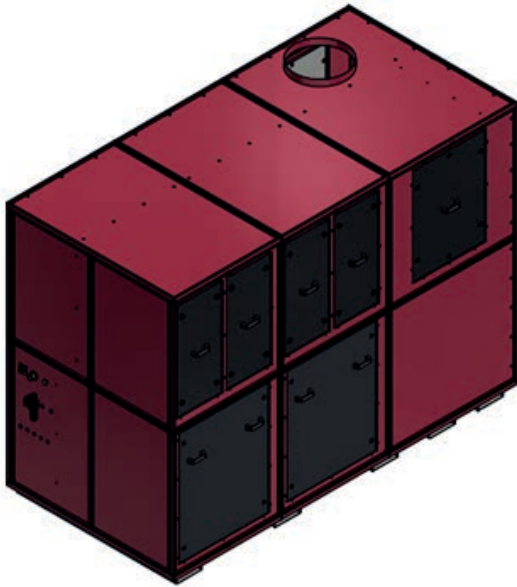
4.3 DIGIFILTER 6CD



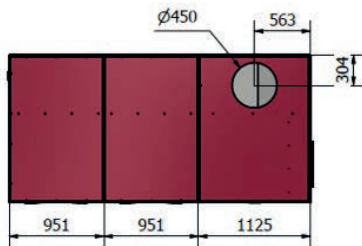
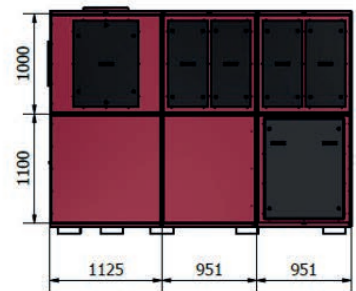
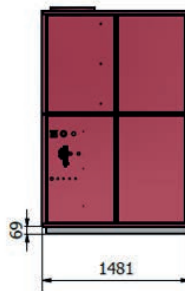
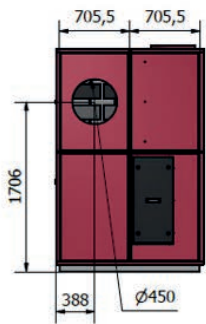
System inlet diameter	400 mm
System outlet diameter	400 mm
Fork centre distance	819 mm
Weight of unit	1300 Kg



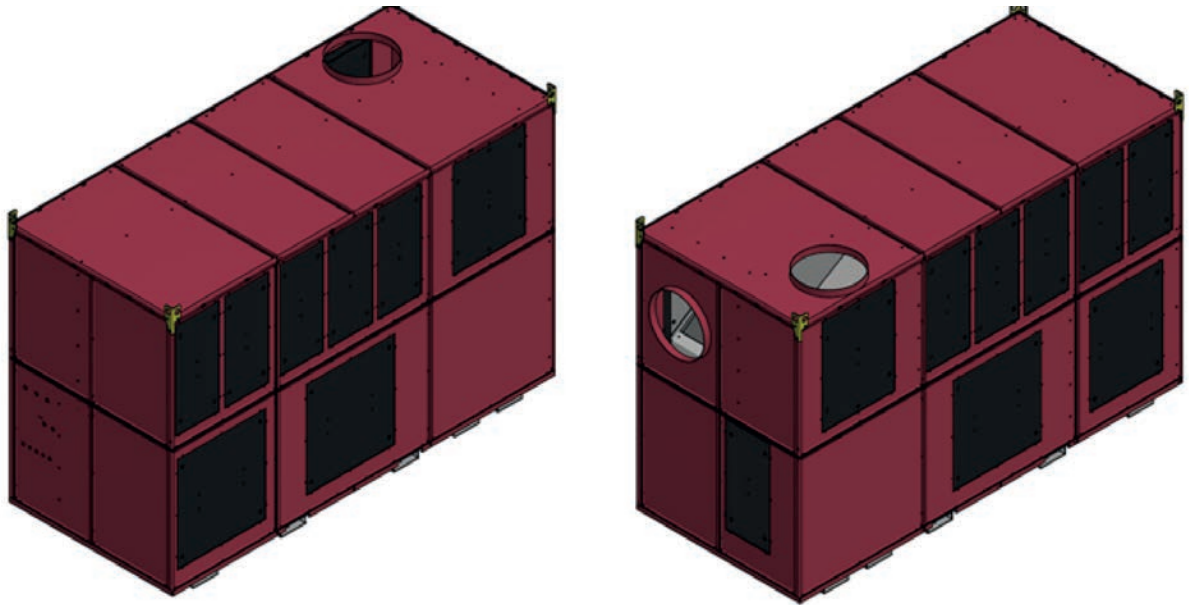
4.4 DIGIFILTER 8CD



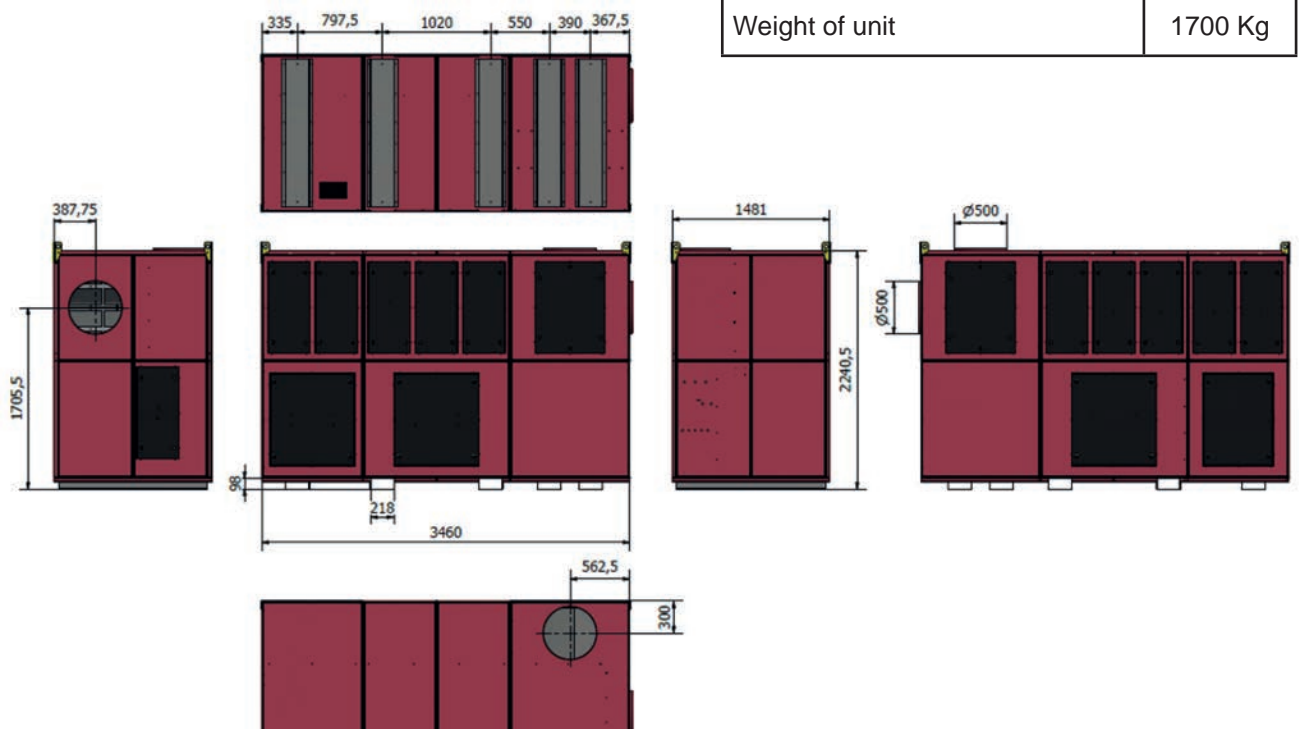
System inlet diameter	450 mm
System outlet diameter	450 mm
Fork centre distance	860 mm
Weight of unit	1600 Kg



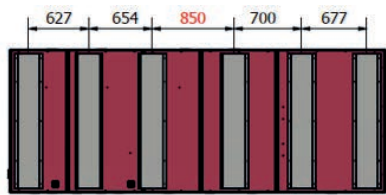
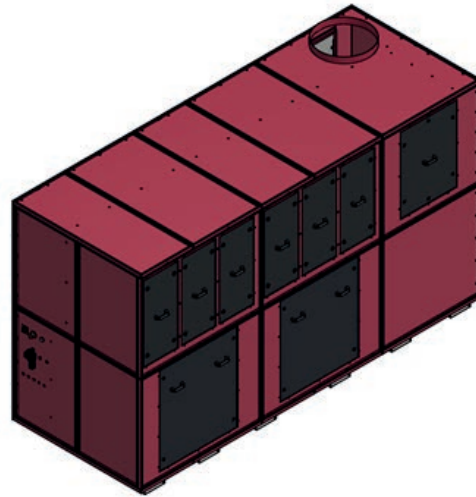
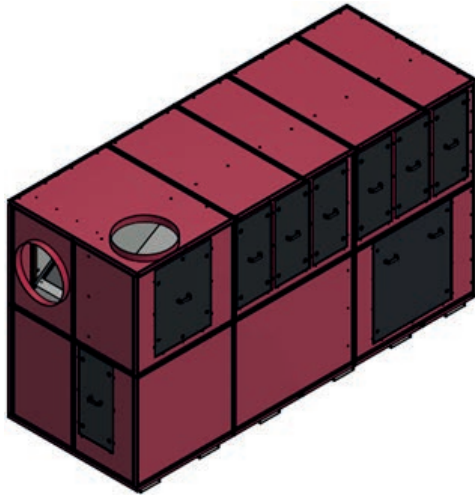
4.5 DIGIFILTER 10CD



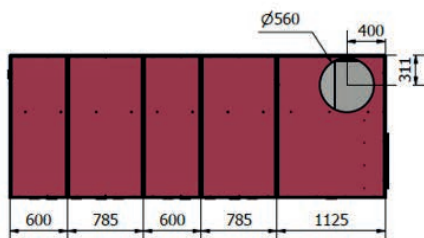
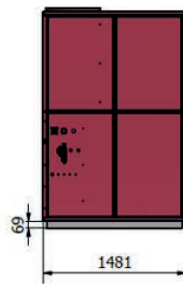
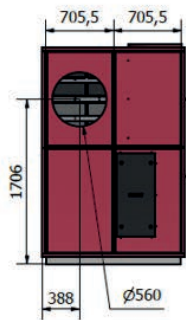
System inlet diameter	500 mm
System outlet diameter	500 mm
Fork centre distance	1020 mm
Weight of unit	1700 Kg



4.6 DIGIFILTER 12CD



System inlet diameter	560 mm
System outlet diameter	560 mm
Fork centre distance	850 mm
Weight of unit	1800 Kg



5 - Step-by-step starting of the DIGIFILTER

For complete and easy starting up, here is the order in which the different key phases must be carried out:

- Electrical connection of the power supply to the 400 V three phase system
- Pneumatic connection of the oil separator pressure reducer.
- Connection of the remote control with the HMI screen.
- Electrical connection with the cutting machine
- HMI screen setup and configuration.

6 - Connection to the electrical system

- 400V - three phase, no neutral - 50 Hz power supply



All the operations relating to the installation, such as those for assembly, putting into service and maintenance, are to be carried out by qualified personnel under the control of a responsible technician.



The **DIGIFILTER** must **NECESSARILY** be connected when it is isolated from all utility supplies. The disconnection and padlocking of all energy sources is **mandatory**.

Recommendation

Electrical cable part number (kW)	System voltage, 50 Hz 400 V three phase	Part numbers of electrical cables
	Cable section (mm ²)	Part number
4	4 x 2.5 mm ²	W000010100
5.5	4 x 2.5 mm ²	W000010100
7.5	4 x 4 mm ²	W000010101
9	4 x 4 mm ²	W000010101
11	4 x 6 mm ²	W000010102
15	4 x 6 mm ²	W000010102
18.5	4 x 10 mm ²	W000010103
22	4 x 10 mm ²	W000010103
30	4 x 16 mm ²	W000010104
37	4 x 25 mm ²	W000010105
55	4 x 35 mm ²	W000010106

6.1 Electricity supply

The electricity supply is to be connected to the terminals of the main disconnector located on the side panel of the **DIGIFILTER**.

Use a multi-conductor cable and connect the three phases to the three terminals of the disconnector and the earth to the earth bar provided.

The cables must necessarily be protected on the floor, by placing cable channels or ducts



In order to avoid the loss of communication, **the power cable must be separated from the RJ45 control cable** of the HMI screen and the control cable from the cutting machine in the various cable channels.

6.2 Pneumatic connections

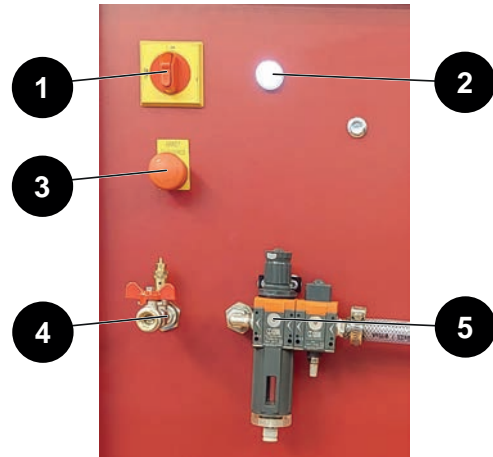


The customer must supply a disconnecting valve on the air supply.



The compressed air must be dry, free from impurities or humidity.
For all other information, please contact the technical staff of **Lincoln Electric**.

1	Main disconnector
2	Power on indicator
3	Emergency stop
4	Compressed air purge
5	Pressure reducer filter



- Compressed air supply 4.5 Bars
- Compressed air connection: Coupling with inner diameter 1/2" – Diameter 16mm.
- Compressed air consumption: 22-litre tank with air at atmospheric pressure for consumption of 6/7 litres per pulse depending on the adjusted operating pressure.

The supply pipe must be protected by putting in place cable channels or ducts.

6.3 Connecting the stack light

The stack light has three lights:

- White: Filter live
- Green: Filter operating
- Red: Variable frequency drive fault

6.4 Starting up the DIGIFILTER



First of all, make sure that all the panels of the extraction unit are shut and locked

Set the main disconnecter (located on the side panel) to position 1.
The white power indicator will go on.
The **DIGIFILTER** is now live.



Press the button on the HMI screen, and the fan will start.



Press the button on the HMI screen once again, and the fan will stop.



Check the motor rotation direction.

In order to ensure the right extraction rates and motor consumption, the motor must operate in the same direction as the arrow on its ventilation casing.

If that is not so, invert two of the three supply phases wired between the variable drive and the motor.

Emergency stop:

If there is any safety problem or if an electrical fault is found. The whole installation can be switched off by pressing the emergency stop button. After identifying and solving the problem, reset the emergency stop and follow the procedure given above for starting up.

Remote control in automatic mode:

Two operating modes are possible:

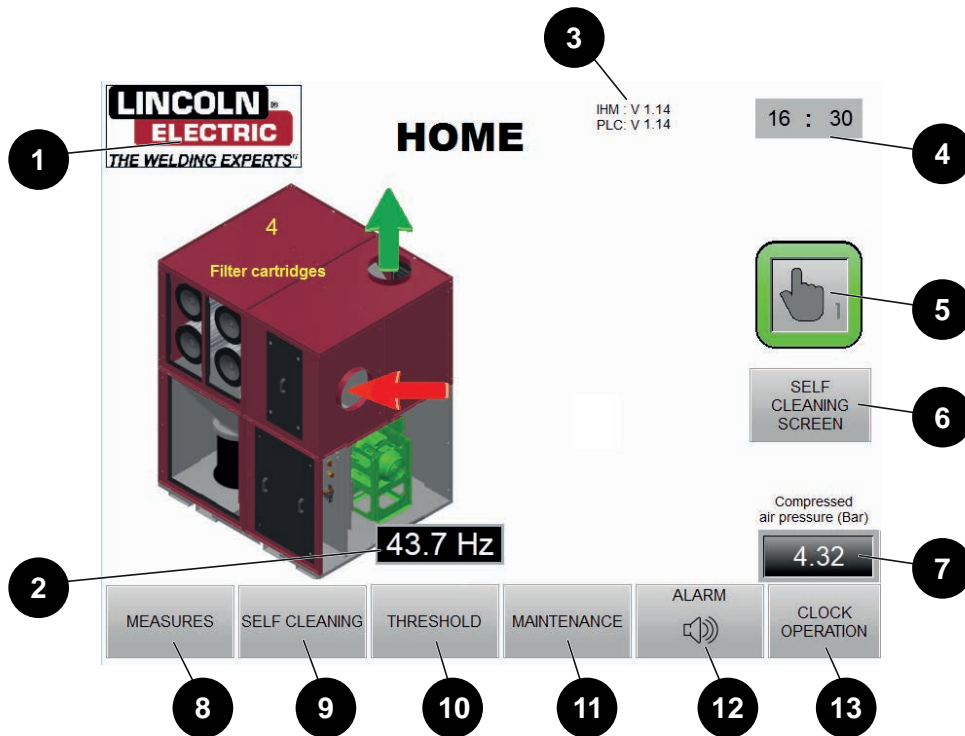
- Remote control using an external contact.
- Remote control with pushbutton (self holding)



Refer to the electrical diagram of the extraction system and the machine for the wiring.

1 - Configuration of the HMI screen

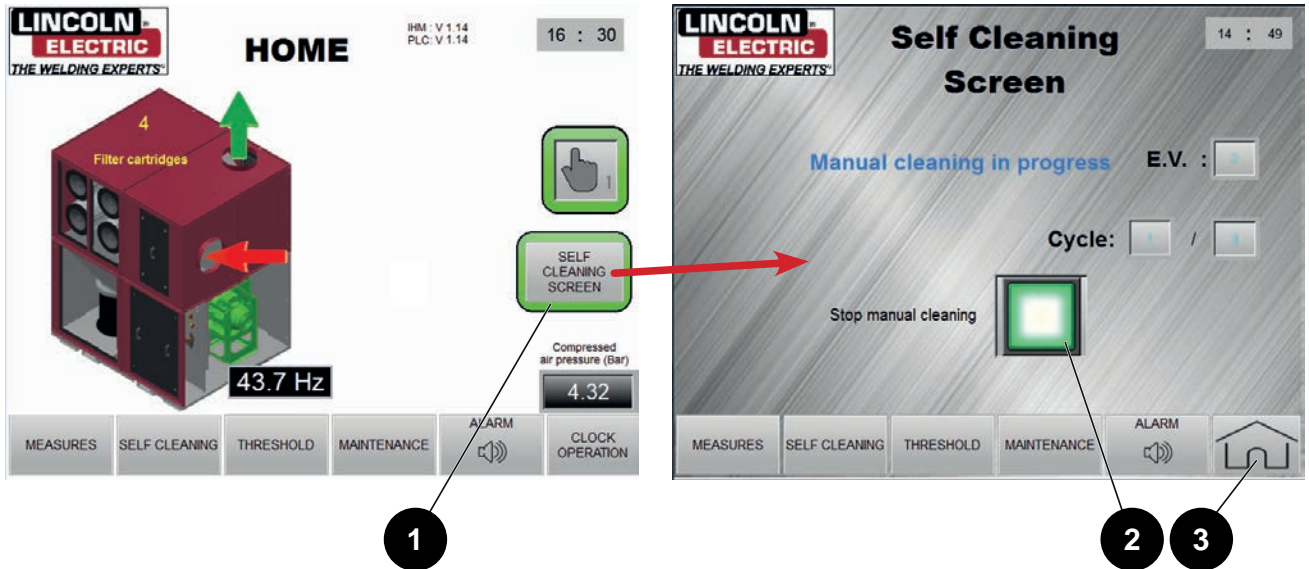
1.1 Home screen



1	Access to configuration settings
2	Operating frequency
3	Program versions for the HMI and PLC
4	Date and time setting
5	Operating mode: <ul style="list-style-type: none"> • Manual • Weekly clock • Automatic
6	Access to the Unclogging screen (circled in green if active)
7	Compressed air pressure
8	Access to the Measurements screen
9	Access to the Unclogging adjustment screen
10	Access to the Threshold adjustment screen
11	Access to the Maintenance adjustment screen
12	Access to the Alarms screen
13	Access to the Clocks screen

1.2 Unclogging display screen

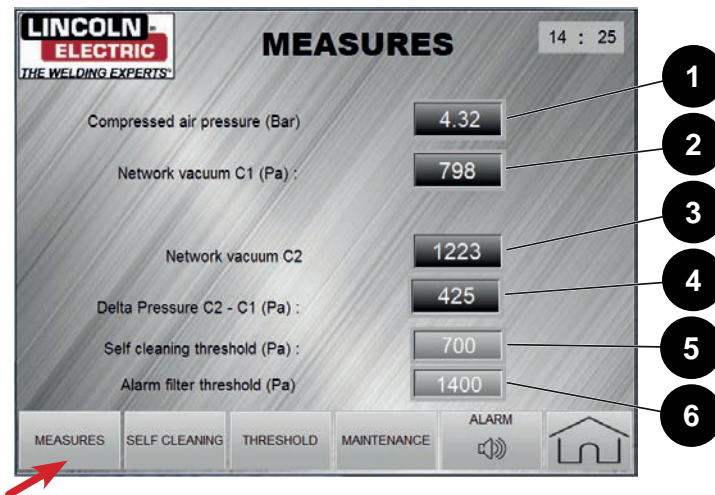
Press the Unclogging screen key of the HMI home screen to display this screen.



1	Access to the Unclogging screen
2	Start of a manual unclogging cycle
3	Back to the home screen

1.3 Real-time measurements screen, with or without flow variation

Real-time display of the different measurement data or regulations of the extraction unit.



1	Compressed air pressure (in Bar)
2	System vacuum, C1 (in Pascal)
3	Fan vacuum, C2 (in Pascal)
4	C2-C1 pressure difference (in Pascal)
5	Unclogging threshold (in Pascal)
6	Filter alarm threshold (in Pascal)

1.4 Unclogging adjustment screen



1	Choice of type of unclogging: <ul style="list-style-type: none"> • Permanent • Threshold
2	Number of filters
3	Pulse time (in milliseconds)
4	Pause time (in seconds)
5	Number of cycles

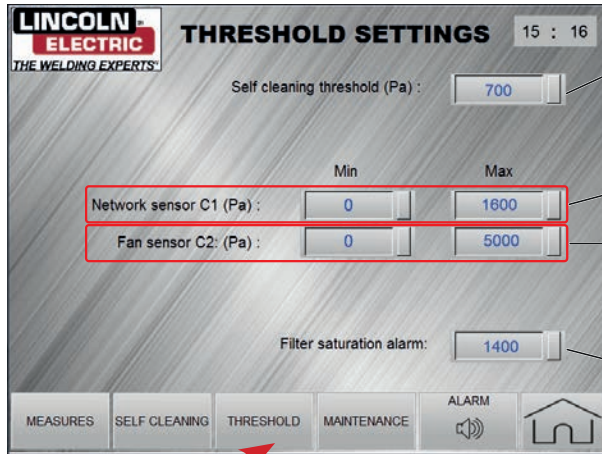


Factory values:

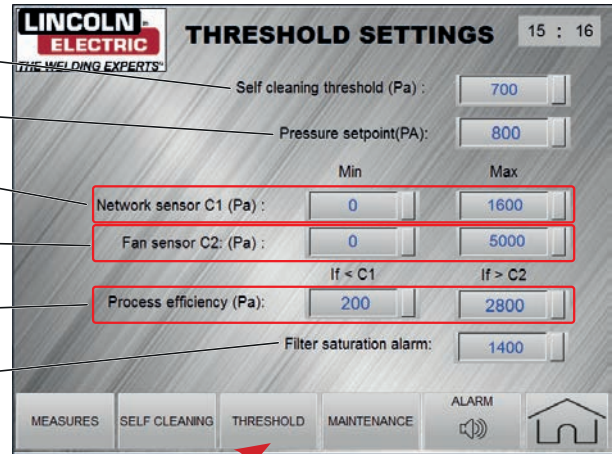
- Pulse time = 300 ms
- Online pause time = 30 s
- Offline pause time = 20 s
- Number of online cycles = 3
- Number of offline cycles = 5

1.5 Threshold adjustment screen

WITHOUT flow variation



WITH flow variation



1	Unclogging threshold (in Pascal)
2	System pressure setpoint (in Pascal)
3	C1 system sensor (in Pascal)
4	C2 fan sensor (in Pascal)
5	Process efficiency (in Pascal)
6	Filter saturation alarm (in Pascal)

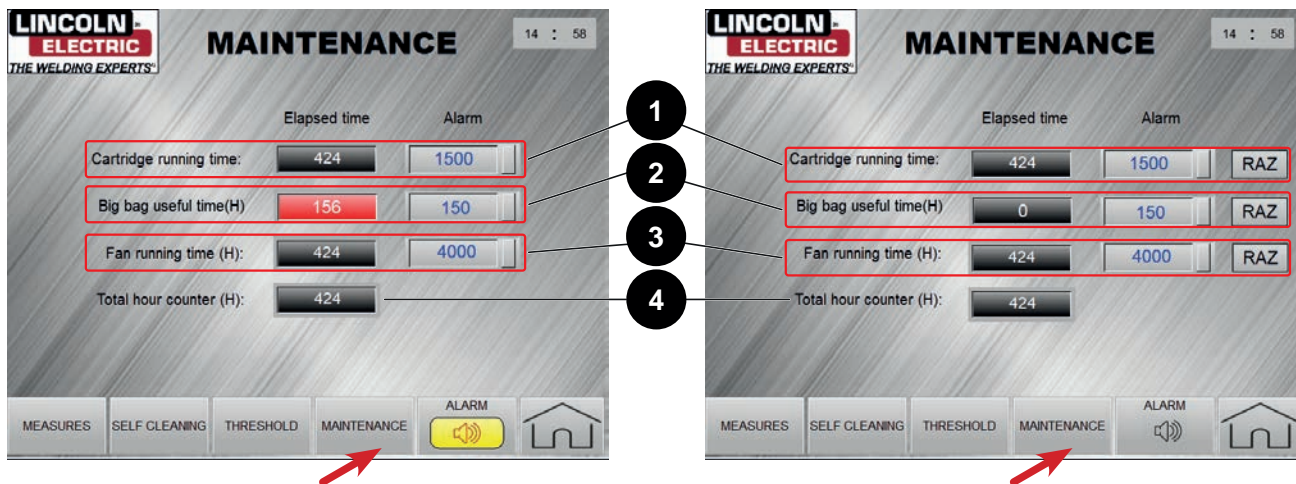
Factory values:



- Unclogging threshold = 700 Pa
- System pressure setpoint = 800 Pa (To be adapted for the types of sensor used)
- C1 system vacuum sensor = 0/1600 Pa
- C2 system vacuum sensor = 0/5000 Pa
- Process efficiency: 200 Pa/2800 Pa
- Filter saturation alarm = 1400 Pa

NB: The pressure sensors located in the electrical cabinet must be calibrated according to the values displayed on the HMI

1.6 Maintenance adjustment screen



1	Cartridge usage time (in hours)
2	Container usage time (in hours)
3	Fan operating time (in hours)
4	Total unit run time counter (in hours)

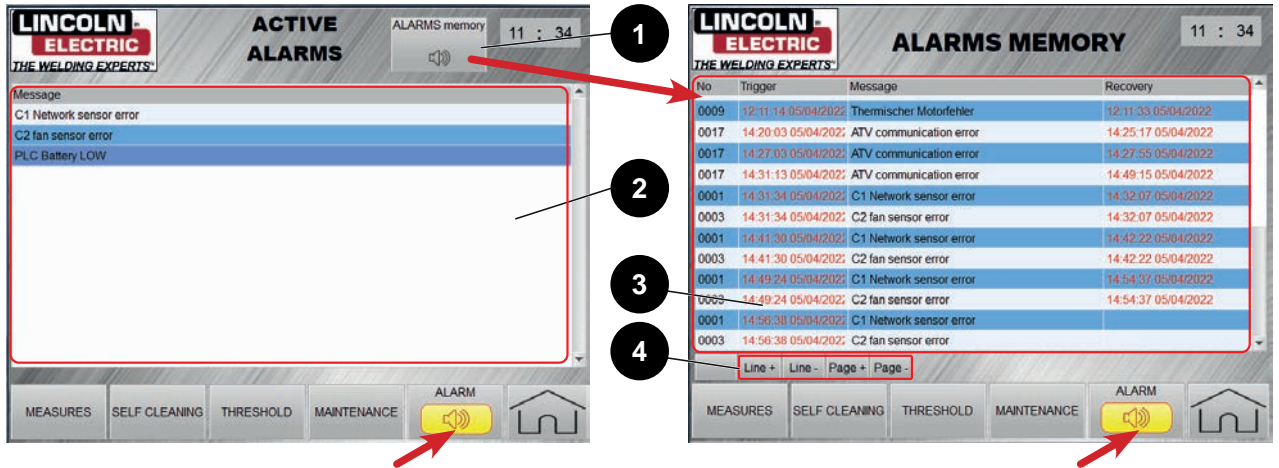
Factory values:

- Use of filter cartridges = 1500 hours
- Use of the dust container = 150 hours
- Fan operating time = 4000 hours (check that vibrations are absent every 4000 hours)



Once maintenance is completed, the customer must log in with the following:
 Login: LINCOLN and password: MAINT
 in order to be able to reset the time counters (RAZ key).

1.7 Alarms screen



1	Access to alarms history
2	List of active alarms
3	Alarms history
4	Page navigation button



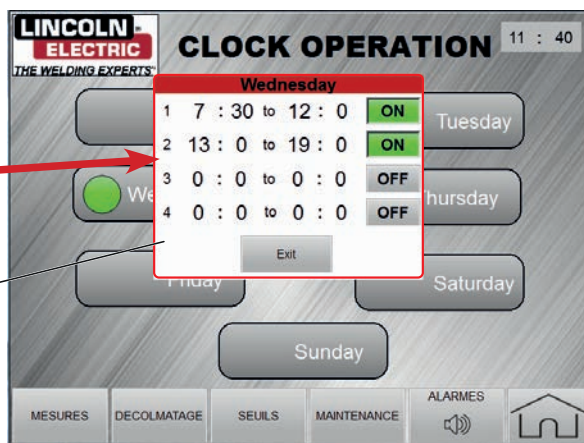
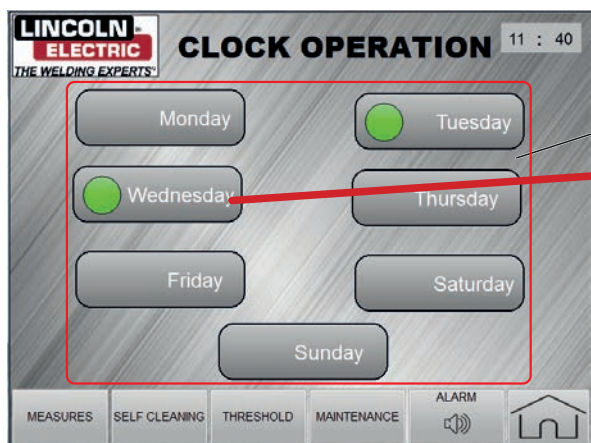
In the Alarms page, you will only find alarms that are active in real time. Once the alarms have been acknowledged, they are logged on the Alarms history page.

1.8 Clocks screen

The Clock page is accessible from the Home page or by clicking the Clock mode if it is activated

The days are active when the time slots are completed and activated

Four time slots are available every day; activation or not by selecting On/Off



1	Access to the Clock page
2	Day of the week
3	Time slot settings zone



NB:
The time slots saved are only operational if the Clock mode has been selected in the Mode configuration page.

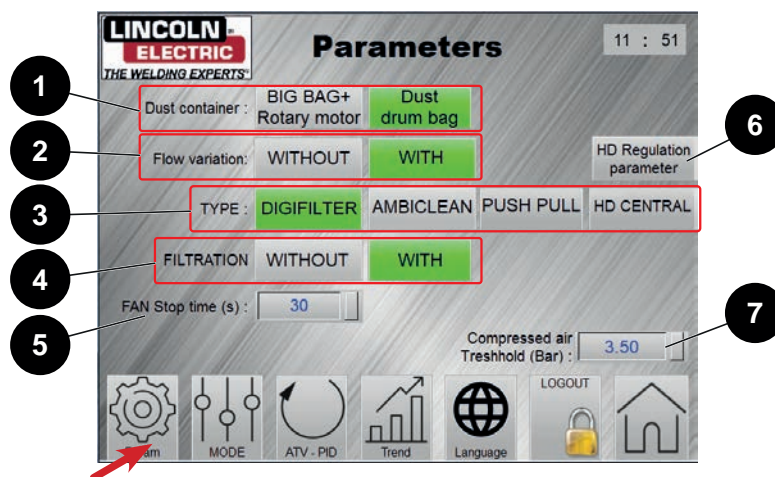
1.9 System screen



Press the Lincoln Electric logo.
After entering the codes, press OK.

- Login: LINCOLN
- Password: MAINT

1.10 Settings screen



1	Type of dust recovery
2	Speed variation setting
3	Type of extraction
4	Filtration setting
5	Fan stopping time (in seconds)
6	HD unit adjustment setting
7	Compressed air threshold (in bars)

Permitted modifications:

- Fan stopping time
- Compressed air threshold



Factory values:

- Fan stopping time = 30 s
- Compressed air threshold = 3.5 bar

1.11 Operating mode screen



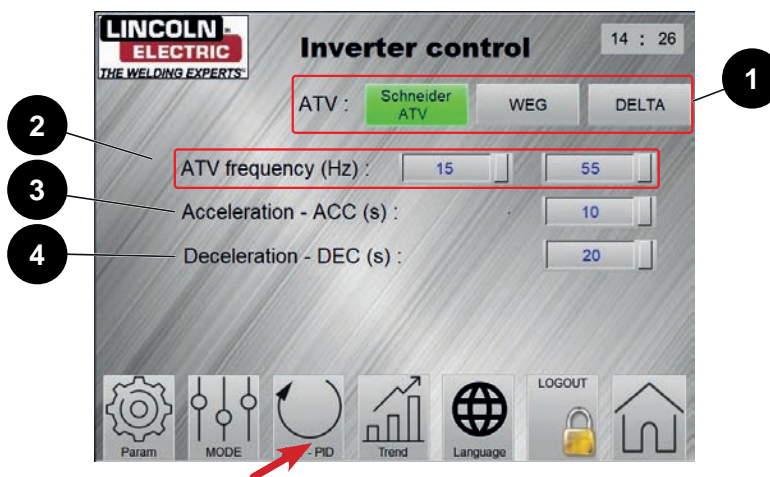
1	Automatic mode by external contact of the hold-to-run type or pulse type
2	Automatic mode by time slot
3	Manual mode

Press the logo to select the desired mode.



NB: The fan must be halted for the modes to become selectable

1.12 Variable drive control screen



1	Type of variable drive
2	Setting of the min and max variable drive frequencies (in Hertz) <ul style="list-style-type: none"> • Min. frequency = 15 Hz • Max. frequency = 55 Hz
3	Acceleration time setting (in seconds)
4	Deceleration time setting (in seconds)

1.13 Languages screen

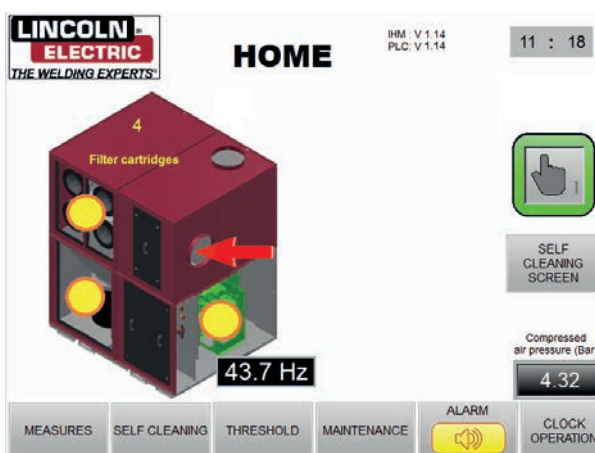
Choice of language depending on the country.



1.14 Maintenance alarms screen

Display by an orange dot of the overrun of maintenance times:

- Filters operation
- Use of container
- Fan operation

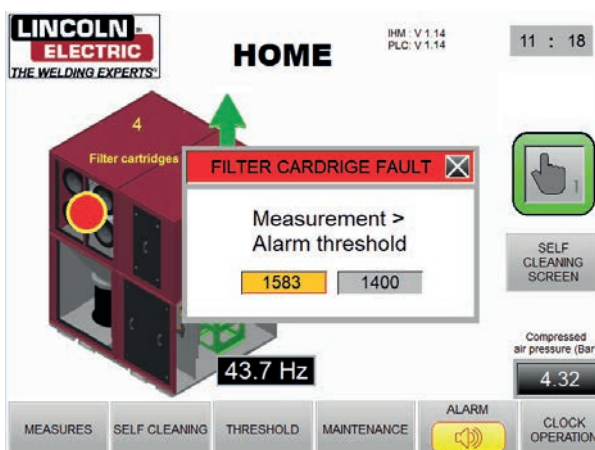


1.15 Cartridge saturation alarms screen

Display of the values of the saturation alarms of filter cartridges.

This screen is displayed when you press the orange key.

The measured value exceeds the saved adjustment threshold (1400Pa).

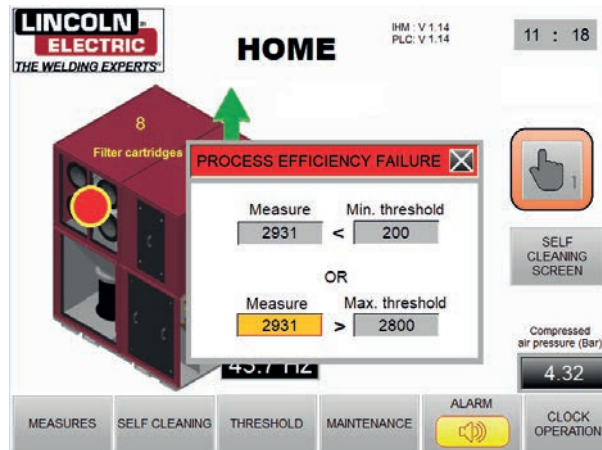


1.16 Process efficiency alarm screen

Display of the process efficiency alarm.

The measured value exceeds the set min or max threshold

- The indicator is red and flashing



1.17 Out of service screen

The **DIGIFILTER** is out of service.

Possible causes:

- Compressed air threshold insufficient
- Emergency stop applied
- Variable drive fault



For more details, access the Alarms page



When the **DIGIFILTER** is out of service, the extraction cannot be restarted.

- Check the emergency stops.
- Check the compressed air pressure.
- Read the error message displayed on the screen of the variable drive, in the electrical cabinet of the unit.

1 - Care



Please read the manual carefully before you start any servicing work. Maintenance operations may only be carried out by specialised and qualified individuals. Behaviour that does not comply with the safety instructions provided could lead to major hazards for personnel and damage to property and/or the surroundings.



Before working on the machine, it is **MANDATORY** to lock out all the supplies of utilities to the machine (electricity, air, gas etc.). The air circuit must be vented before any work is done on it. Locking an emergency stop button is not sufficient.



CAUTION: All work at heights (maintenance, troubleshooting etc.) must be carried out with appropriate personnel lifting equipment.



For operating instructions, adjustments, troubleshooting and spare parts, please refer to the special instructions for safe operating and maintenance.



Before starting up the machine, make sure that the replaced parts are perfectly installed and that the tools used are removed from the machine.
Make sure that each safety device is in good condition and legible.

MAINTENANCE OF MECHANICAL PARTS



The machine requires negligible mechanical maintenance if it is used correctly in accordance with its technical characteristics.
Before any type of maintenance that is not clearly defined in these instructions, please make inquiries with the technical department of **Lincoln Electric**.
The performance of operations that may not be carried out or are contrary to the standards and procedures described in the manual would release **Lincoln Electric** from liability for any damage caused and would void the guarantee if it is still valid.

1.1 Pneumatic maintenance

The filter must be purged regularly.

The air supply pipes must be inspected (for leaks) and changed if necessary.

Refer to the maintenance counter or cartridge change counter, which is 1500 hours.

1.2 Electrical maintenance

Regularly check the cables and connections. Tighten the screw connections.

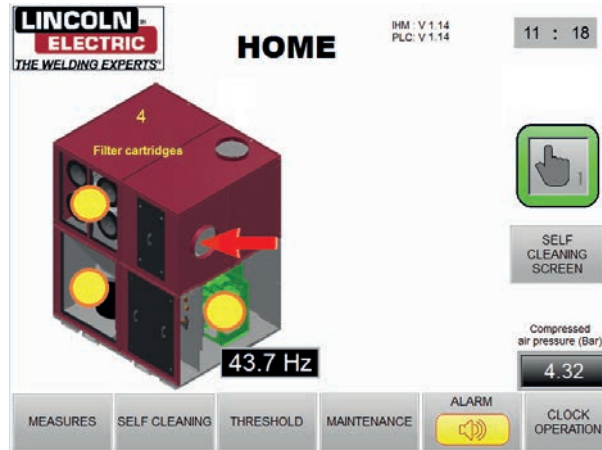
Worn cables must be replaced.

Refer to the maintenance counter of the unit, which is 4000 hours.

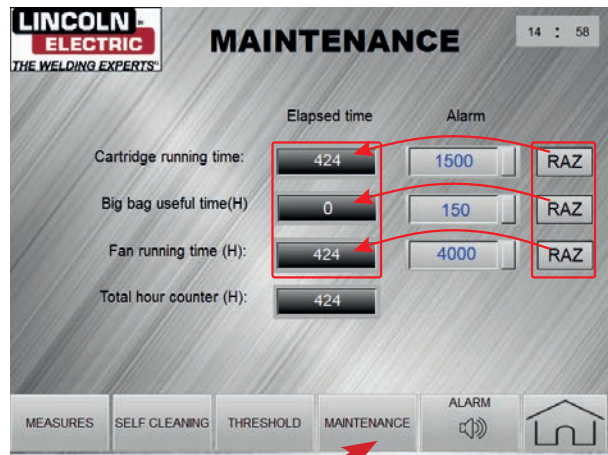
1.3 Maintenance message on the HMI screen

The display of a yellow indicator on filter cartridges or dust containers does not indicate faults. They are maintenance alarms.

They may relate to the replacement of filter cartridges, the emptying of dust containers or bulk bags, rotary discharger maintenance, motor maintenance, or general unit maintenance.



These maintenance alarms indicate that the run time counter of the relevant part has reached the limit and maintenance is required; the counter must then be reset up to the next cycle.



To reset the counter, you must click on the counter and then log in:

- Login: LINCOLN
- Password: MAINT

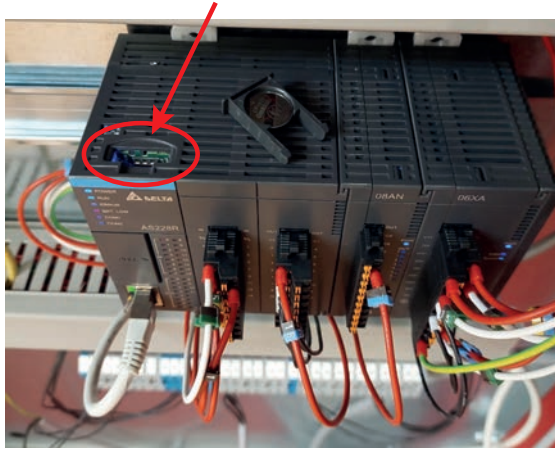
1.4 Batteries on the PLC and HMI screen

The Delta HMI and PLC are fitted with batteries to save the configurations and settings.

The life of those batteries is estimated to be between 2 and 3 years, if the unit is regularly powered on and up to 5 years if the unit remains powered.

That is why we recommend leaving the unit on standby and powered at the end of the day.

on the Delta PLC: CR1620 - 3V battery



on the Delta HMI screen: CR2032 - 3V battery



In order to not lose the settings, the battery change must be made with the power on, by a worker with electrical approval.

1.5 HMI screen and PLC software update

For different reasons relating to maintenance, product upgrade or failure, the programs of the PLC and HMI screen can be updated.



Please contact the staff of Lincoln Electric for these tasks.

1.6 Fan



The rotating parts of fans (wheel, shaft, pulley) are very hazardous.

Check fan vibrations upon starting up. They must comply with ISO 14694 according to the tables below. If they are not conforming, please contact us. This regular inspection is required for the integrity of the fan.

Table 1 - Fan application category

Application	Power limits	Fan application category
	kW	
Households	≤ 0.15	BV-1
	> 0.15	BV-2
HVAC and farming	≤ 0.37	BV-2
	> 0.37	BV-3
Industrial processes and energy generation	≤ 300	BV-3
	> 300	See ISO 10816-3
Transport and maritime	≤ 15	BV-3
	> 15	BV-4
Traffic/tunnel	≤ 75	BV-3
	> 75	BV-4
Petrochemicals processes	≤ 37	BV-3
	> 37	BV-4
Computer chip manufacturing	None	BV-5

Table 2 - Vibration limits

Status	Category of application	Rigid assembly	Flexible assembly
		mm/s (rms).	mm/s (rms).
Starting	BV-1	10	11.2
	BV-2	5.6	9
	BV-3	4.5	6.3
	BV-4	2.8	4.5
	BV-5	1.8	2.8
Alarm	BV-1	10.6	14
	BV-2	9	14
	BV-3	7.1	11.8
	BV-4	4.5	7.1
	BV-5	4	5.6
Stopping	BV-1	Depending on history	Depending on history
	BV-2	Depending on history	Depending on history
	BV-3	9	12.5
	BV-4	7.1	11.2
	BV-5	5.6	7.1

NB: Lincoln Electric markets fans of categories BV3 and BV4.



All maintenance operations are to be carried out with the power to the system switched off.
The user may not modify the construction of the fan in any way.

Check that dust is not being deposited in large quantities on the following:

- The motor ventilation blades.
- The fixed and rotating parts of the fan.

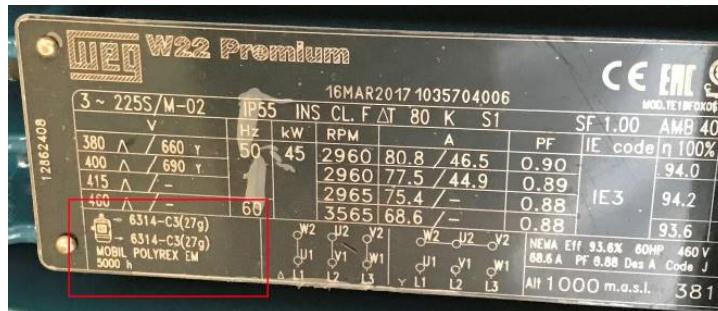
Clean if necessary.

The fan wheel must be clean and regularly cleaned in order to avoid a drop in efficiency or wheel unbalance.

Lubrication:

If the fan does not have a lubricator, no lubrication is required.

If the fan does have a lubricator, follow the instructions provided on the motor identification plate.



Motors with lubricators must be halted before lubrication. Proceed as follows:

- Before lubrication, clean the lubricator plug and the immediate vicinity carefully.
- Remove the lubricant entry protection.
- Pump approximately half the total lubricant indicated on the identification plate of the motor and make the motor run for one minute at nominal speed.
- Stop the motor and pump the remaining lubricant.
- Plug the lubricant inlet and put back the plug that shuts off lubricant removal.



Excess lubrication can lead to bearing overheating, which can make the bearing fail.
Type of lubricant to use: Mobil Polyrex EM

Rear lubricator



Front lubricator



Bearing maintenance:

Bearing inspection

As soon as the motor shows the following:

- noise or abnormal vibrations,
- abnormal heating of the bearing when it is lubricated correctly; the condition of the bearings must be inspected.

Damaged bearings must be replaced as soon as possible to prevent more significant damage to the motor and driven parts.

When a bearing needs to be replaced, **the other bearing must also be replaced.**

Seals must always be changed when bearings are changed.

The floating bearing must allow the expansion of the rotor shaft (make sure to identify it during disassembly).

Bearing housing overhaul

Housings with bearings with no lubricator

Disassemble the motor; remove the old lubricant and clean the bearings and accessories with grease remover.

Put fresh lubricant: the filling rate of the housing with fresh lubricant is 50% of the free space.

Housings with bearings with lubricator

Always start off by cleaning the waste grease channel

If using the type of grease identified on the nameplate, remove the covers and clean the lubricator heads.

If a different grease from that on the nameplate is being used, the motor must be dismantled and the bearings and accessories cleaned with degreasing agent (carefully clean the grease inlet and outlet pipes) to remove the old grease before relubrication.

For proper lubrication, fill the inner free spaces of bearing retainers, flanges and grease pipes and 30% of the bearing free space.

Then rotate the motor shaft to spread the grease.

Important:

Too much grease causes the bearing to overheat (statistics show that more bearings are damaged through too much grease than too little grease).

Important note:

Fresh grease must be recently manufactured, of equivalent performance and free from any impurity (dust, water, etc.).

1.7 Maintenance of filtering elements

Pre-filters:



The pre-filter must be cleaned with the extraction system disconnected and locked out.



From time to time (every week at the start) as a preventive measure or whenever extraction no longer seems adequate:

Clean with compressed air in a very well ventilated room or by immersion in a solution of water + FILTERCLEAN 20L part no. W000342878 and dry with air (dilution depending on fouling, see label on drum).

Access to the pre-filters is through the panel on the front.

Filter cartridge replacement:



To replace the filter cartridges, always use gloves, safety glasses, a respiratory mask and appropriate clothing in order to prevent any risk of contact with or inhalation of the particles collected. The power supply must always be switched off using the disconnect or via the fuses. If the filter has a power connector, it must be separated from its socket on the wall.



- 1: Open the filter compartment
- 2: Unscrew the flat nut that holds the cartridge fastened
- 3: Place a plastic bag around the cartridge and remove it
- 4: Put the clogged cartridge in the packaging of the new cartridge
- 5: Put in the new cartridge, screw back the flat nut and close the doors
- 6: Apply the starting up procedure

Users are strongly advised to replace the cartridge as soon as the system ceases to operate satisfactorily. (When extraction no longer seems adequate). Or when the cartridge saturation alarm is active.



Used filters must be treated using an appropriate process in accordance with local regulations.

Procedure for emptying the dust container:



While emptying the container/s, use gloves, safety glasses, a respiratory mask and appropriate clothing in order to avoid any risk of contact with or inhalation of the particles collected. The power supply must always be switched off using the disconnecter or via the fuses.



By default, there is no bag. If there is one, it must be weighted down so that it is not sucked up by the vacuum when it is empty.



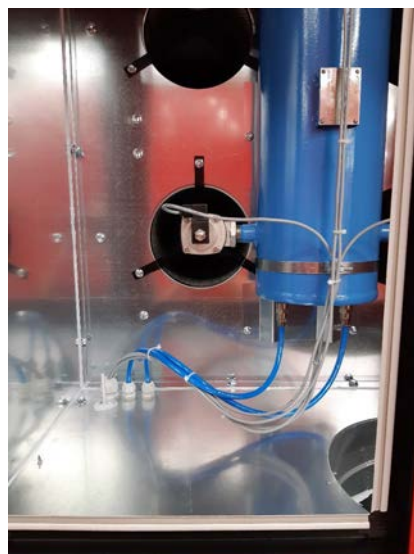
- 1: The containers must be emptied regularly
- 2: Switch off the power supply to the fan.
- 3: Open the dust container compartment
- 4: Take off the holding latches (to do so, press the unlocking mechanisms of the latches on the HD units)
- 5: Remote the container using equipment appropriate for the weight of the assembly.
- 6: If there is a bag, replace the bag inside and put the container in its place.
- 7: Put the unit back into service.



Dust bags must be treated using an appropriate process in accordance with local regulations

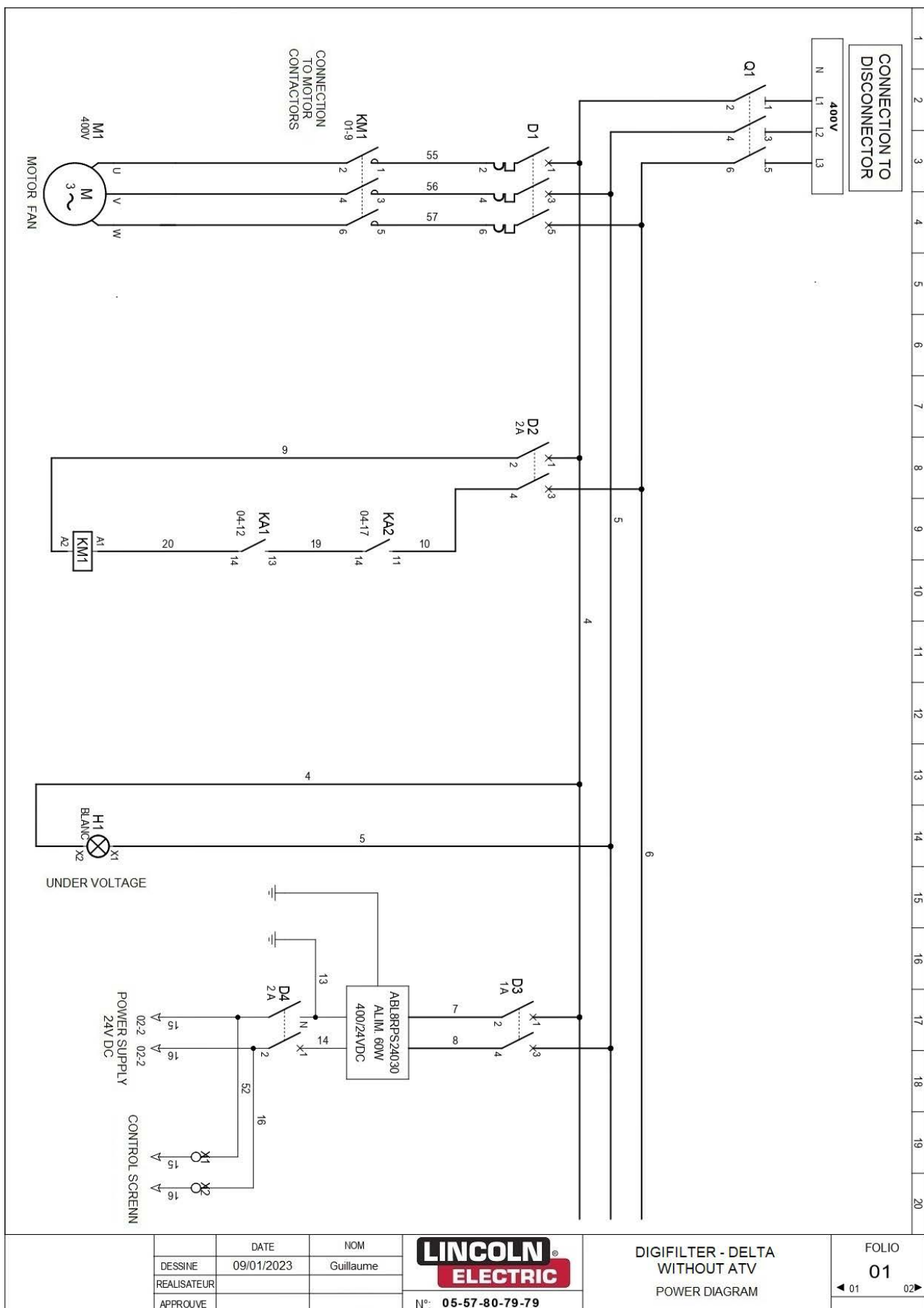
Inspection of unclogging components:

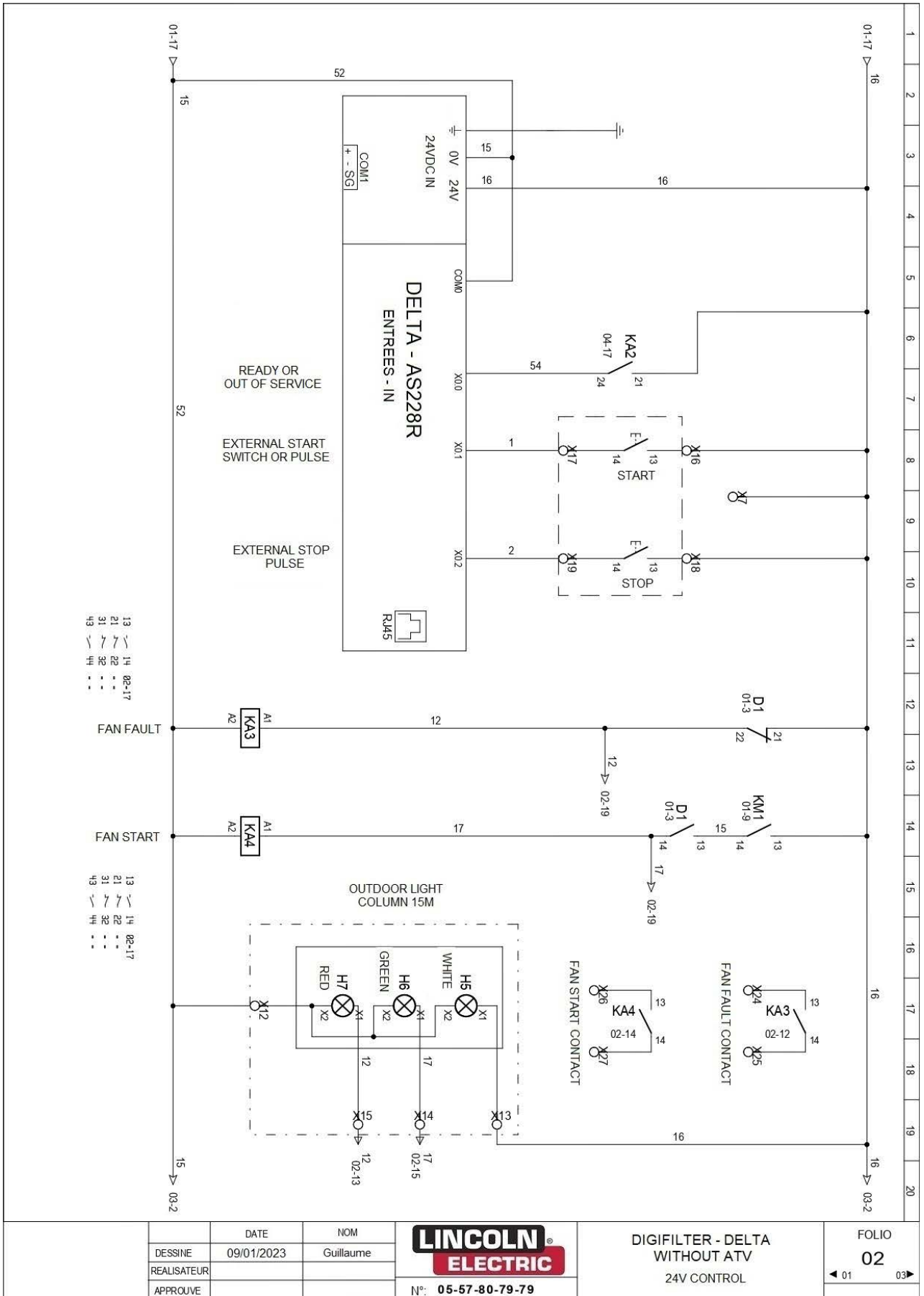
It is important to inspect the proper working and position of the unclogging solenoid valves while replacing filter cartridges. They must be placed along the centre line of the cartridges.



2 - Electrical diagrams

2.1 Without variable drive





13 ~ 14 02-17
 21 ~ 22 ..
 31 ~ 32 ..
 43 ~ 44 ..

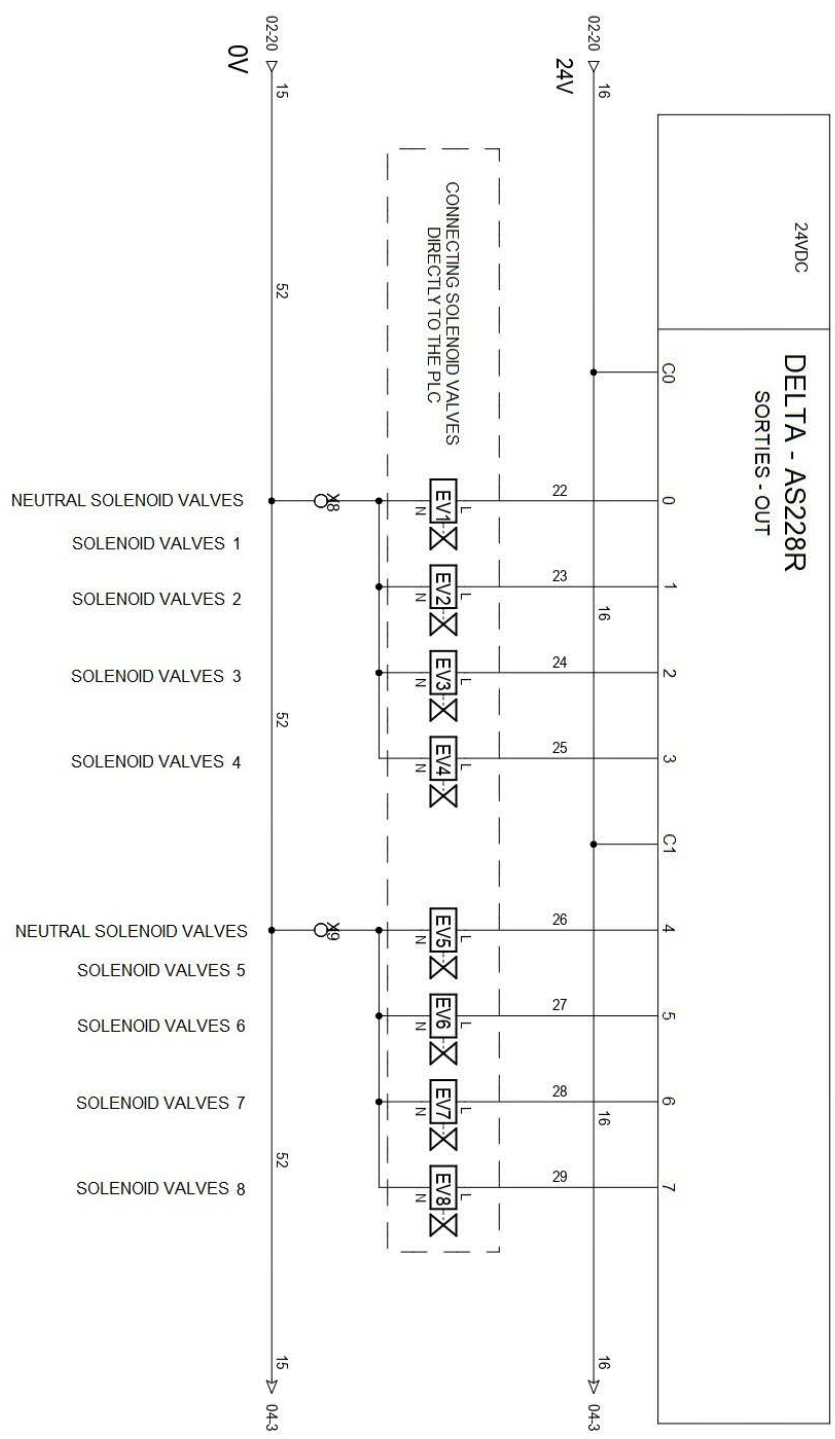
13 ~ 14 02-17
 21 ~ 22 ..
 31 ~ 32 ..
 43 ~ 44 ..

DESSINE	09/01/2023	NOM	Guillaume
REALISATEUR			
APPROUVE			

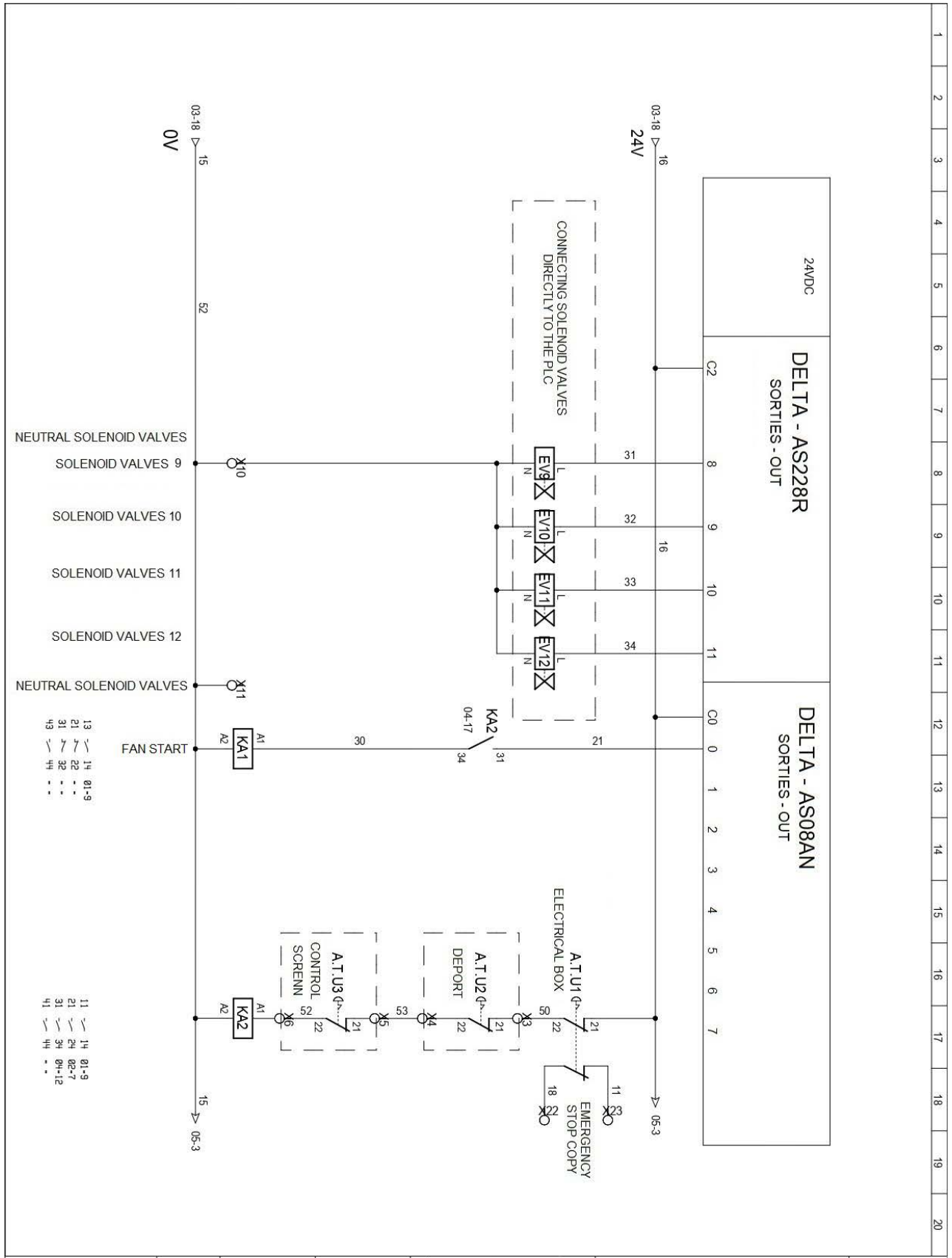
LINCOLN
ELECTRIC
 N°: 05-57-80-79-79

DIGIFILTER - DELTA
 WITHOUT ATV
 24V CONTROL

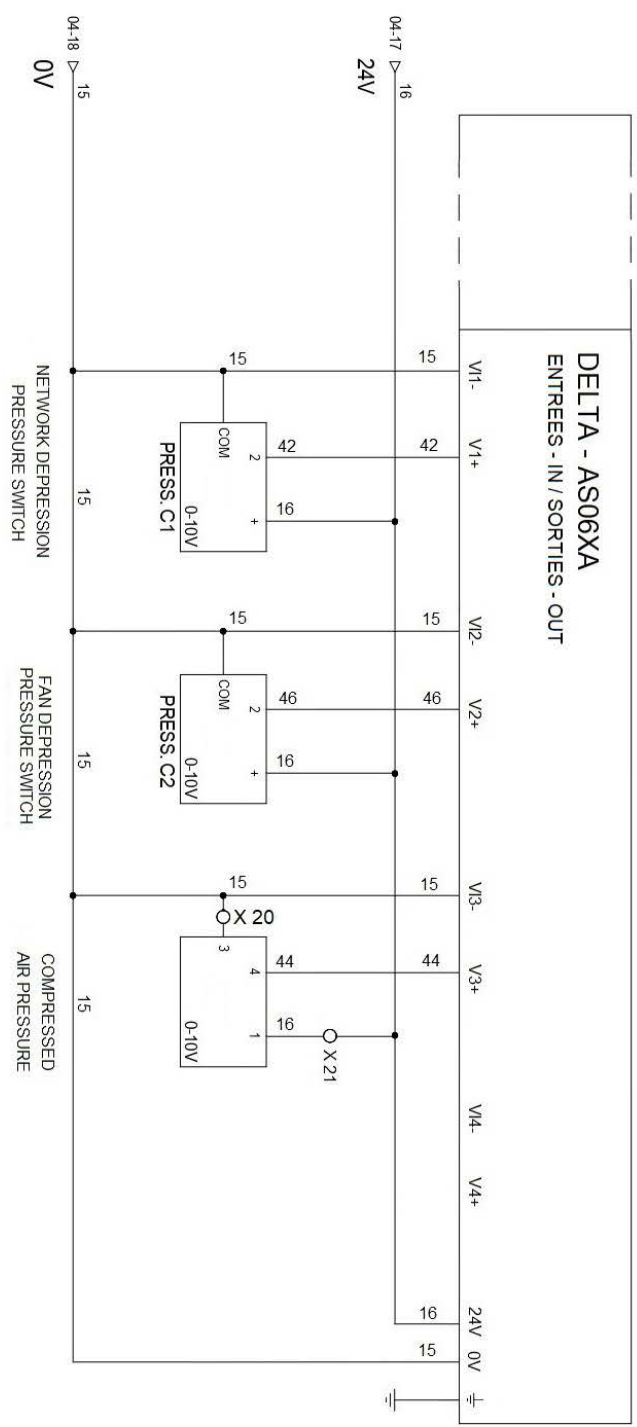
FOLIO
02
 ◀ 01 03 ▶



	DATE	NOM	 N°: 05-57-80-79-79	DIGIFILTER - DELTA WITHOUT ATV 24V CONTROL	FOLIO 03 ◀ 02 04 ▶	
	DESSINE	04/09/2022				Guillaume
	REALISATEUR					
APPROUVE						



DESSINE REALISATEUR APPROUVE	DATE	NOM	LINCOLN ELECTRIC N°: 05-57-80-79-79	DIGIFILTER - DELTA WITHOUT ATV 24V CONTROL	FOLIO 04 ◀ 03 05 ▶
	09/01/2023	Guillaume			



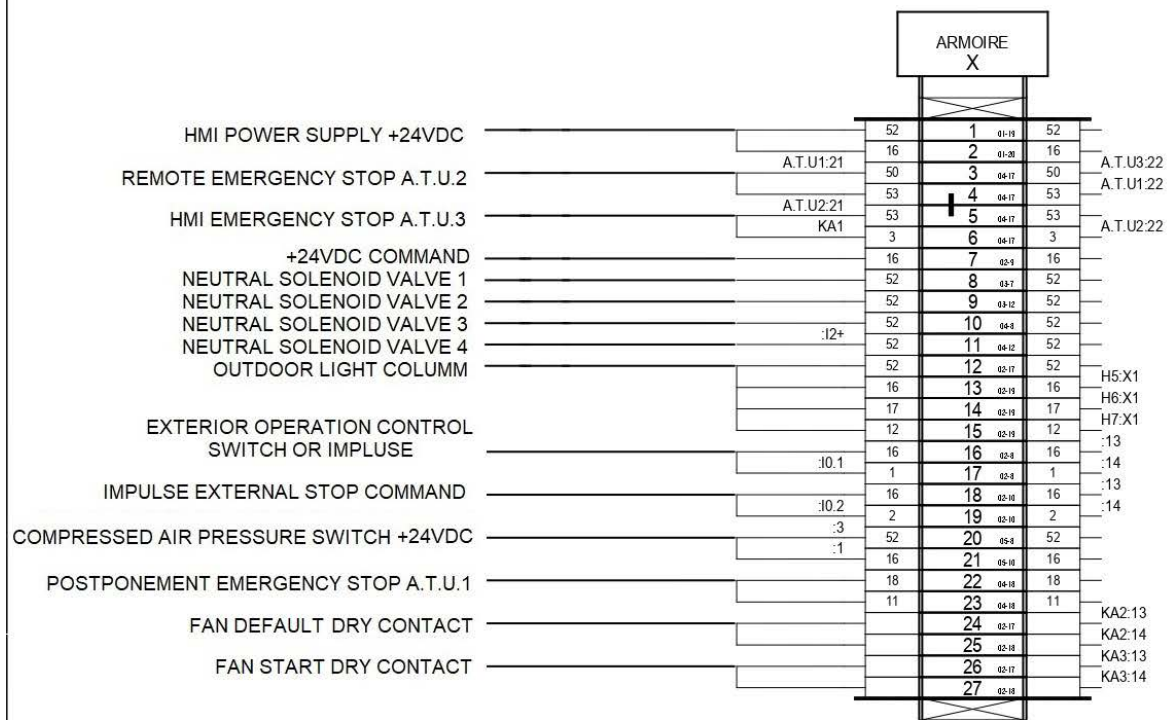
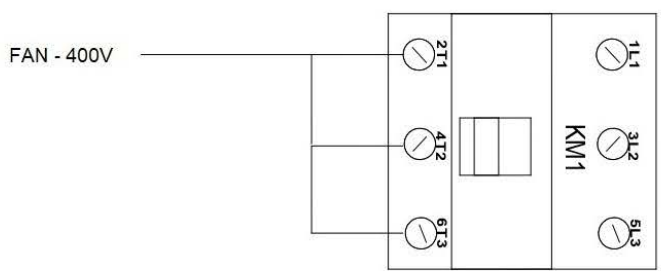
	DATE	NOM
DESSINE	09/01/2023	Guillaume
REALISATEUR		
APPROUVE		

LINCOLN
ELECTRIC

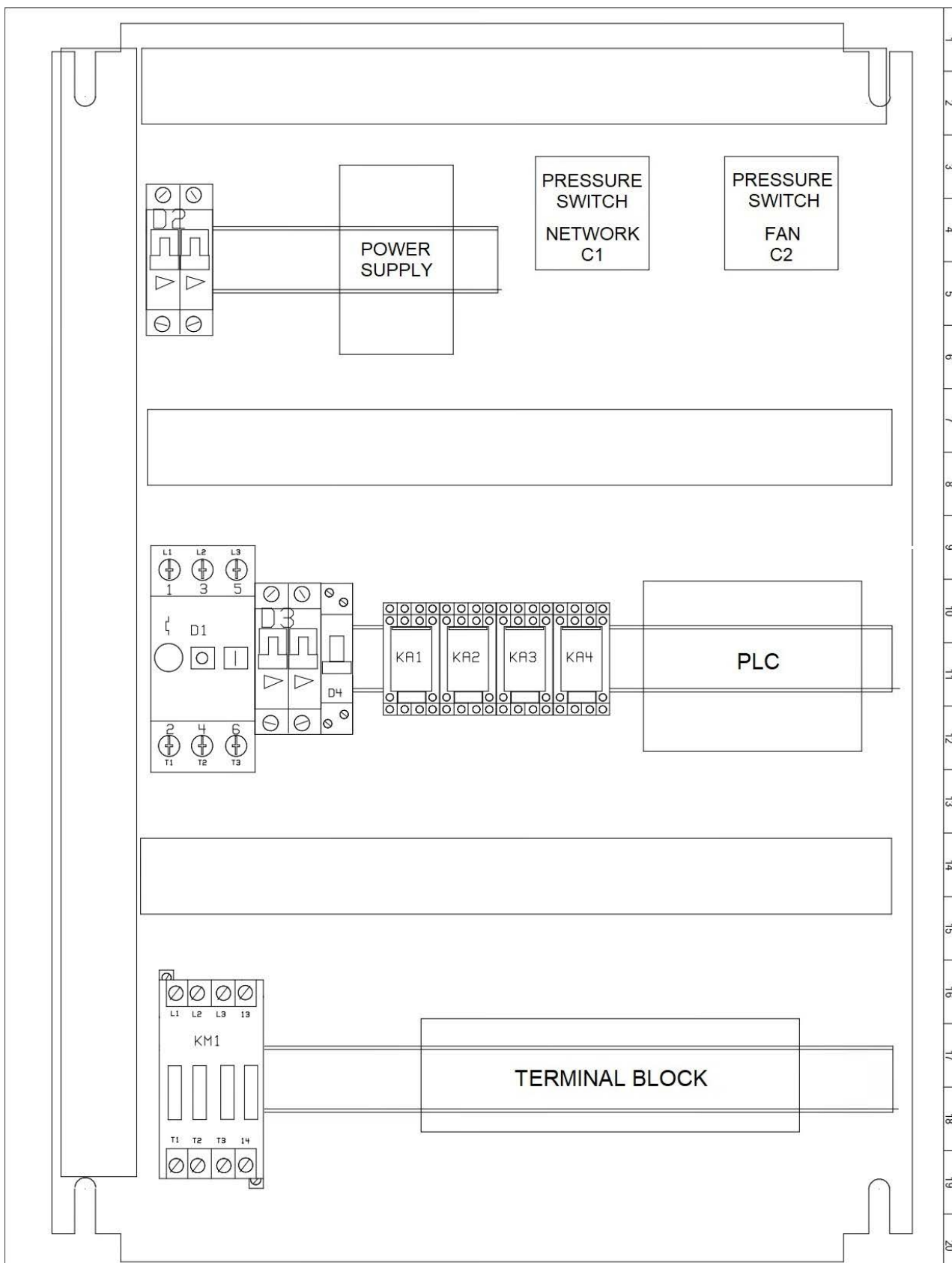
N°: 05-57-80-79-79

DIGIFILTER - DELTA
WITHOUT ATV
24V CONTROL

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	DATE	NOM	LINCOLN ELECTRIC	DIGIFILTER - DELTA WITHOUT ATV ELECTRICAL TERMINAL BLOCK	FOLIO
DESSINE	09/01/2023	Guillaume			06
REALISATEUR			N°: 05-57-80-79-79		◀ 05 07 ▶
APPROUVE					



	DATE	NOM
DESSINE	09/01/2023	Guillaume
REALISATEUR		
APPROUVE		

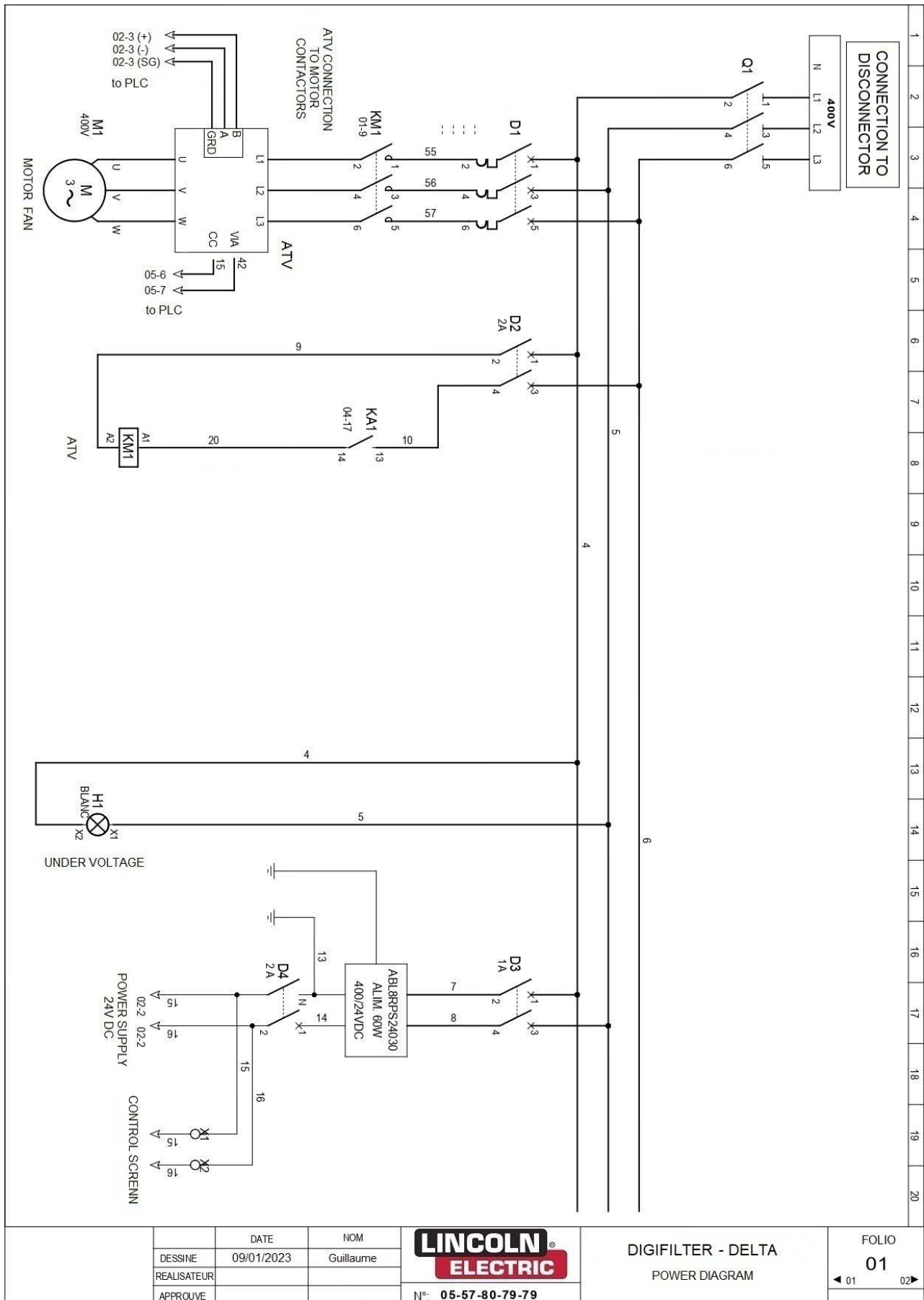
LINCOLN
ELECTRIC

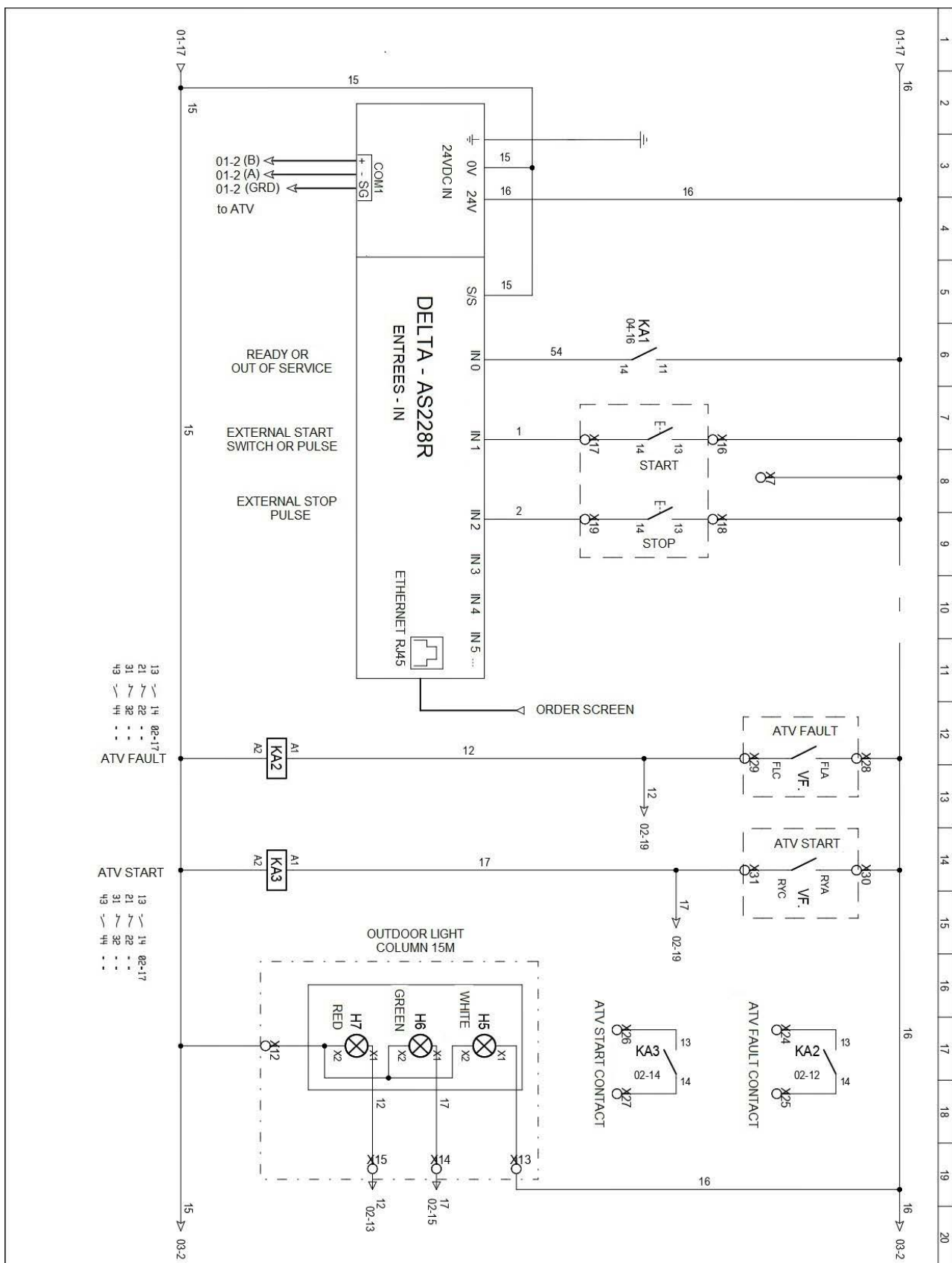
N°: 05-57-80-79-79

DIGIFILTER - DELTA
WITHOUT ATV
IMPLANTATION

FOLIO
07
◀ 06 08 ▶

2.2 With variable drive



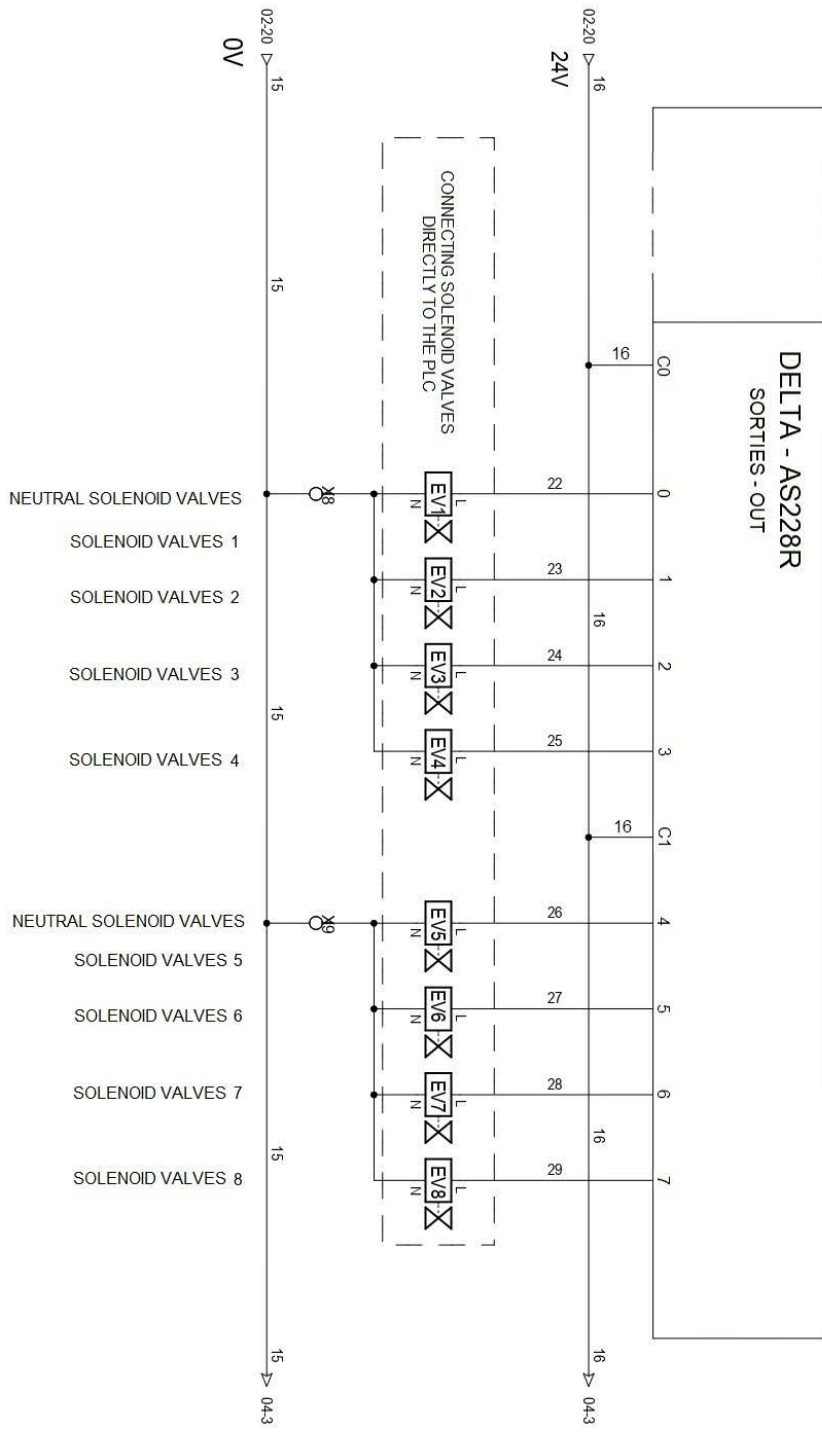


- 13 - 14 02-17
- 21 - 22 02-17
- 31 - 32 02-17
- 49 - 49 02-17

DATE	09/01/2023	NOM	Guillaume
DESSINE			
REALISATEUR			
APPROUVE			

LINCOLN
ELECTRIC
N°: 05-57-80-79-79

DIGIFILTER - DELTA
24V CONTROL



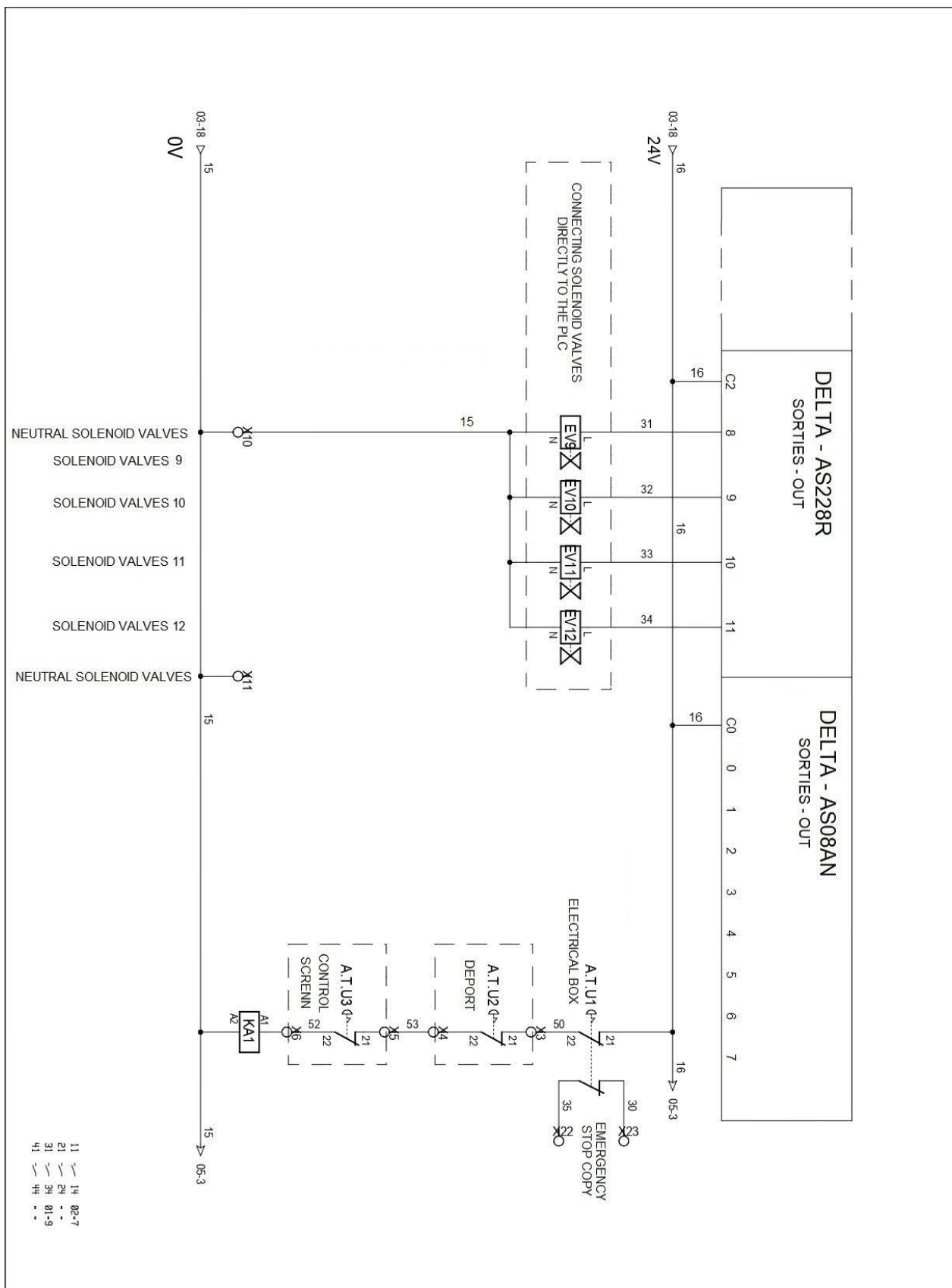
DESSINE	04/09/2022	NOM	Guillaume
REALISATEUR			
APPROUVE			

LINCOLN
ELECTRIC

N°: 05-57-80-79-79

DIGIFILTER - DELTA
24V CONTROL

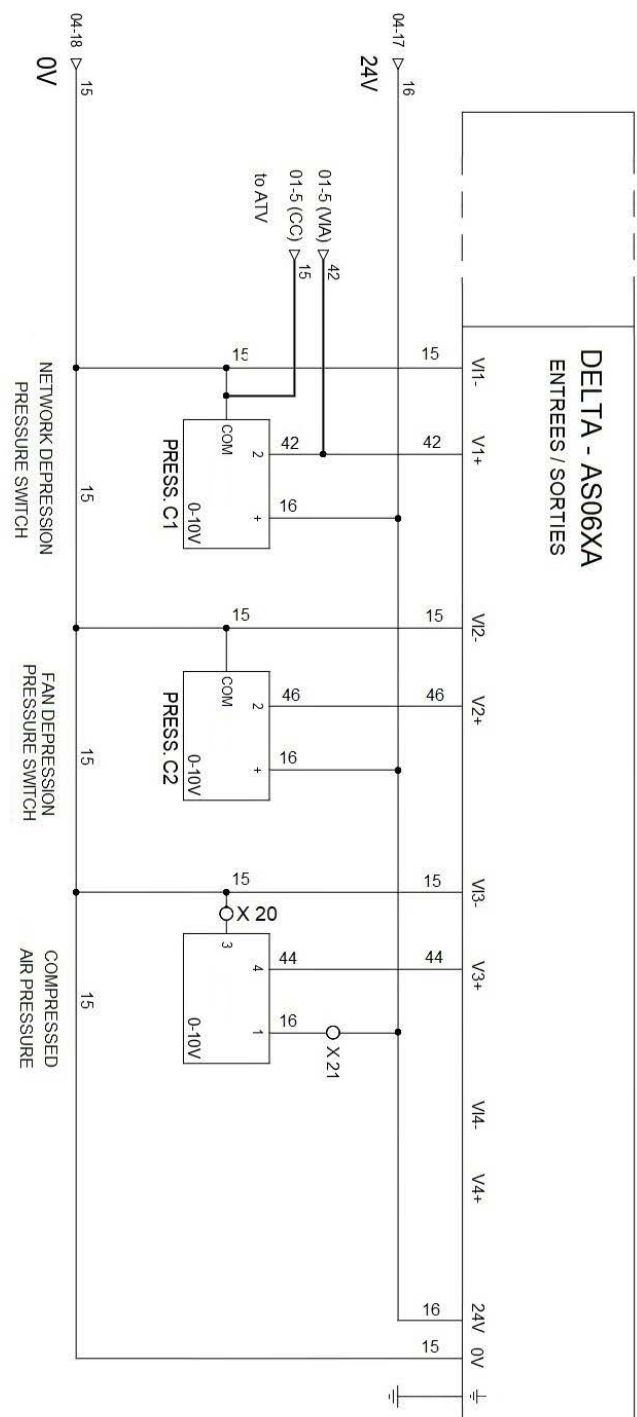
FOLIO
03
◀ 02 04 ▶



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41 44 - -

	DATE	NOM		DIGIFILTER - DELTA 24V CONTROL	FOLIO 04 ◀ 03 05 ▶
DESSINE	09/01/2023	Guillaume			
REALISATEUR					
APPROUVE			N°: 05-57-80-79-79		

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	DATE	NOM
DESSINE	09/01/2023	Guillaume
REALISATEUR		
APPROUVE		

LINCOLN
ELECTRIC

N°: 05-57-80-79-79

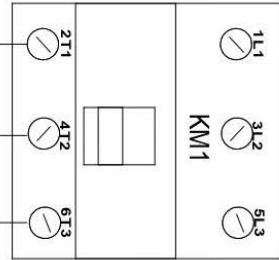
DIGIFILTER - DELTA
24V CONTROL

FOLIO
05

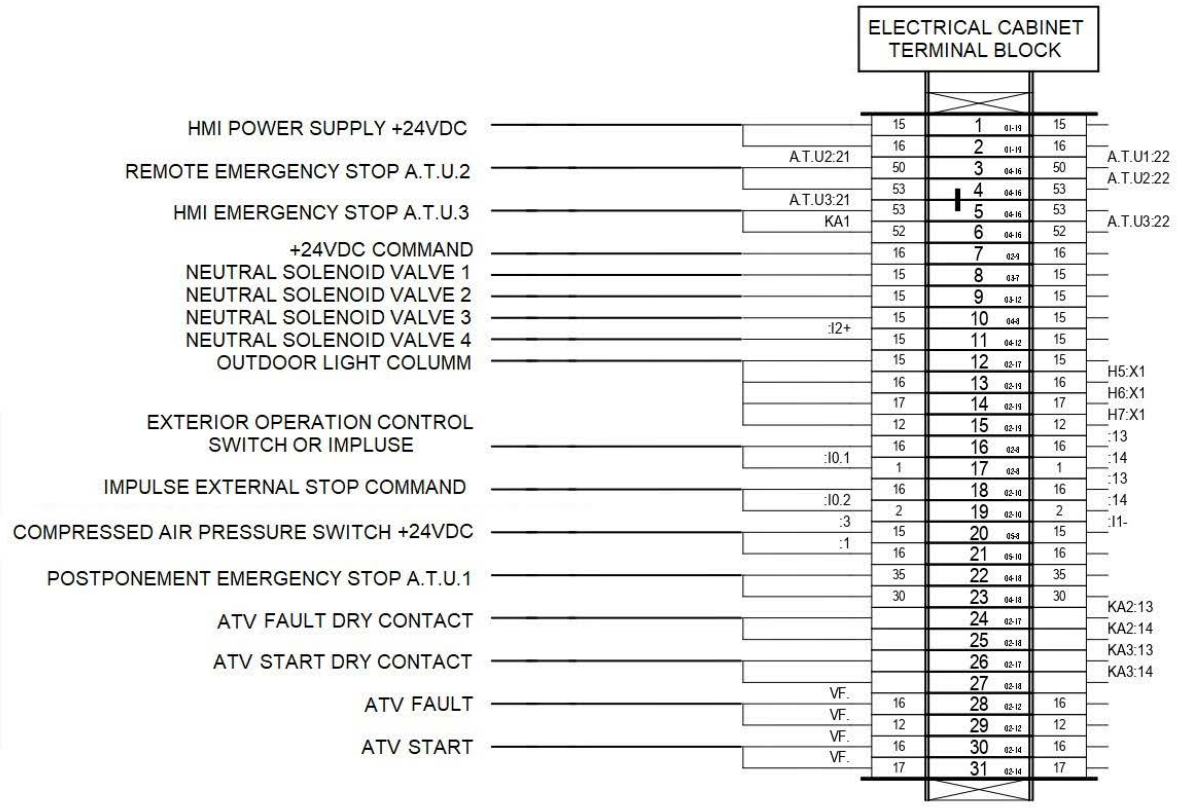
◀ 04 06 ▶

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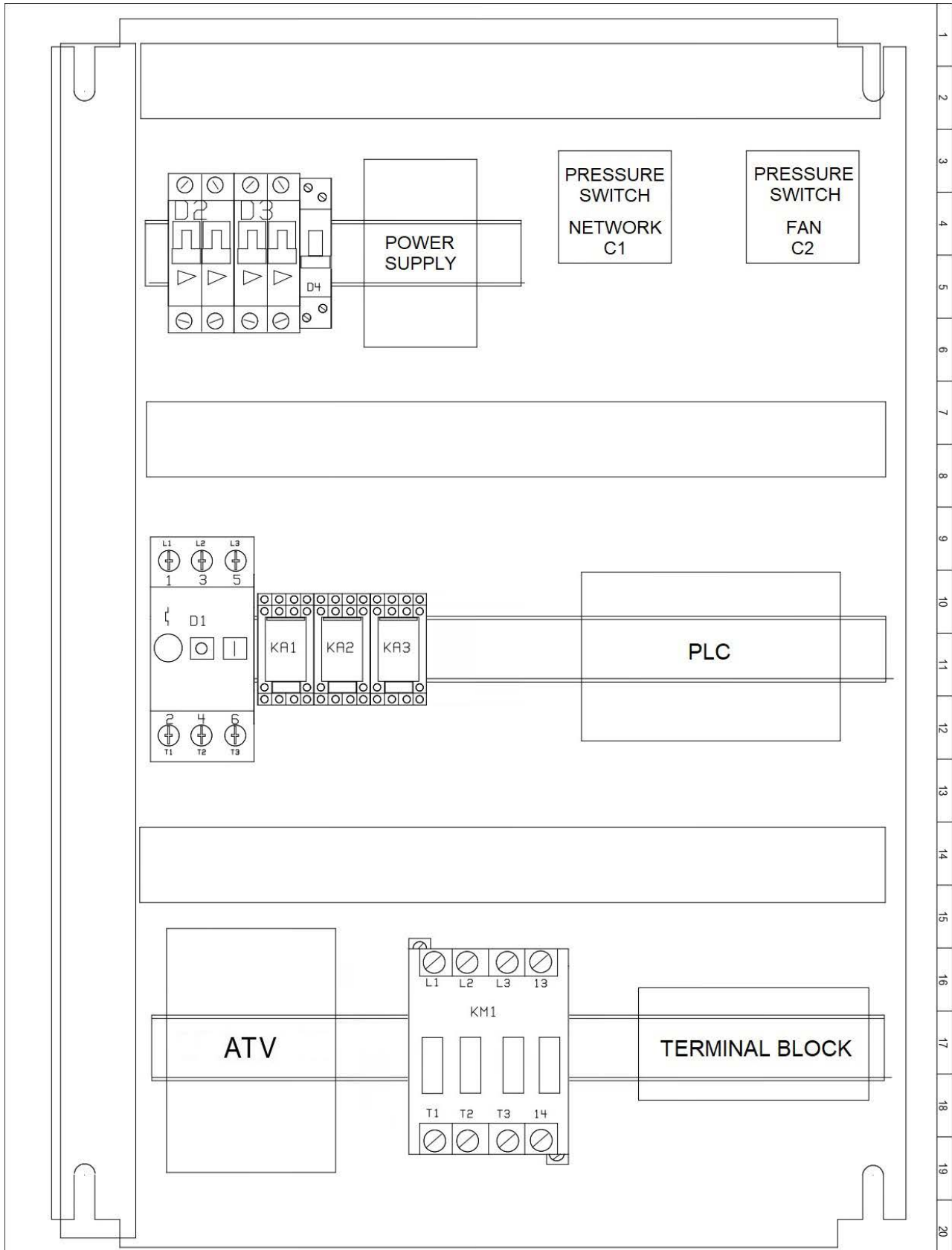
FAN ATV - 400V



ELECTRICAL CABINET



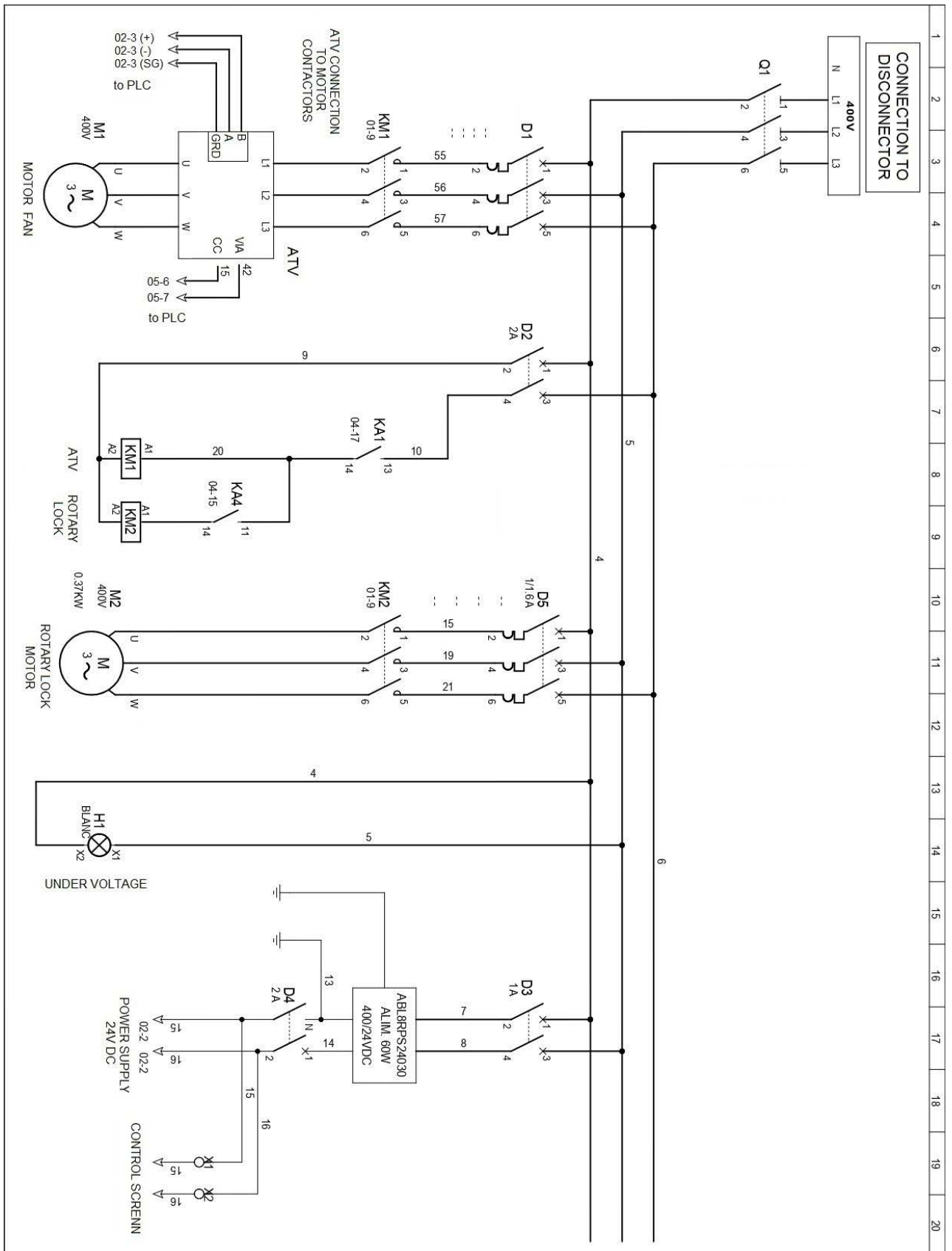
	DATE	NOM		DIGIFILTER - DELTA Bornier : X X - 1/1	FOLIO
DESSINE	09/01/2023	Guillaume			06
REALISATEUR					◀ 05 07 ▶
APPROUVE			N°: 05-57-80-79-79		



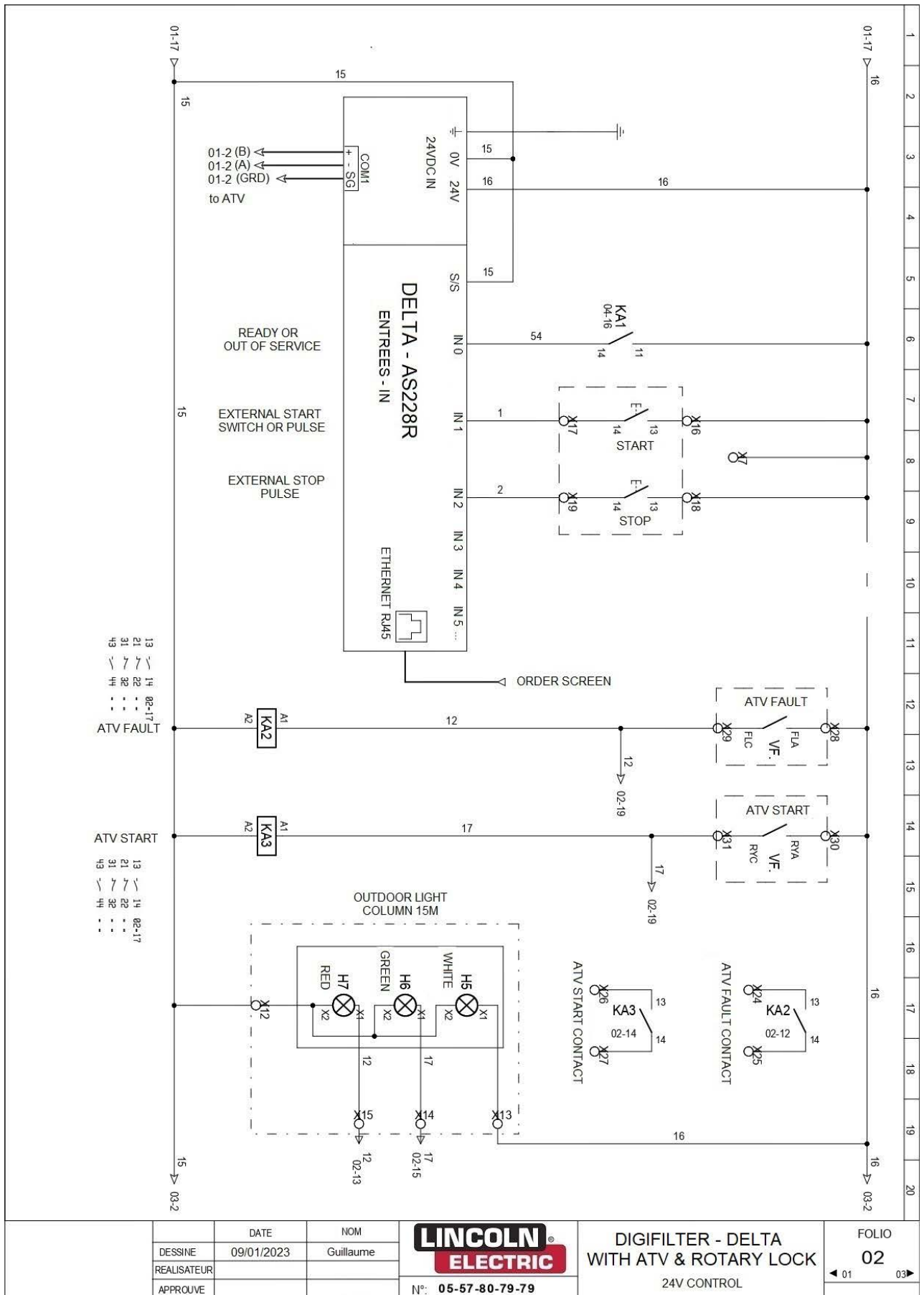
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	DATE	NOM	 N°: 05-57-80-79-79	DIGIFILTER - DELTA IMPLANTATION	FOLIO 07 ◀ 06 08 ▶
DESSINE	09/01/2023	Guillaume			
REALISATEUR					
APPROUVE					

2.3 With variable drive and rotary discharger



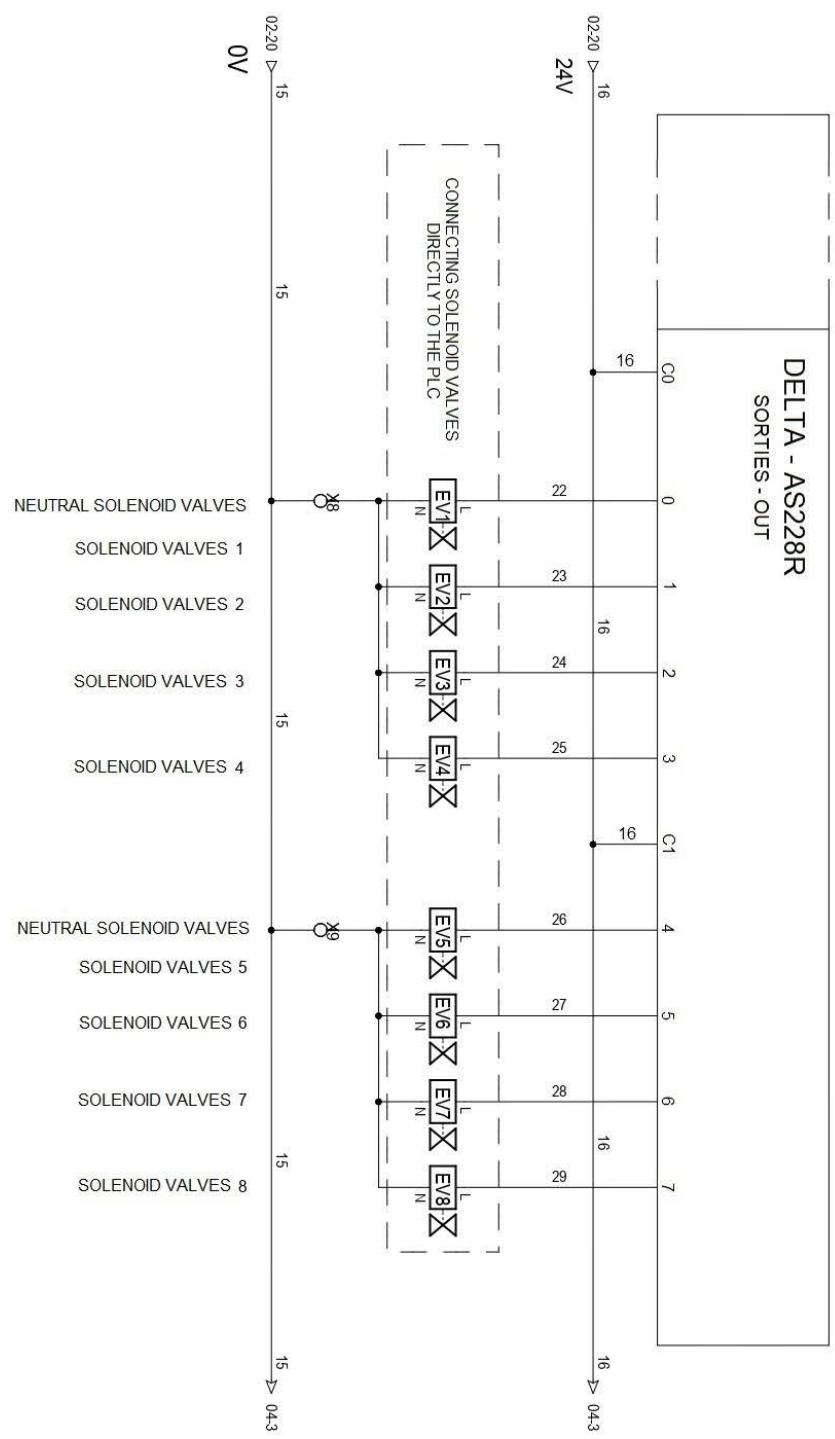
		DATE	NOM	LINCOLN ELECTRIC	DIGIFILTER - DELTA WITH ATV & ROTARY LOCK	FOLIO
DESSINE	09/01/2023	Guillaume	N°: 05-57-80-79-79			01
REALISATEUR				POWER DIAGRAM	◀ 01	02 ▶
APPROUVE						



	DATE	NOM
DESSINE	09/01/2023	Guillaume
REALISATEUR		
APPROUVE		

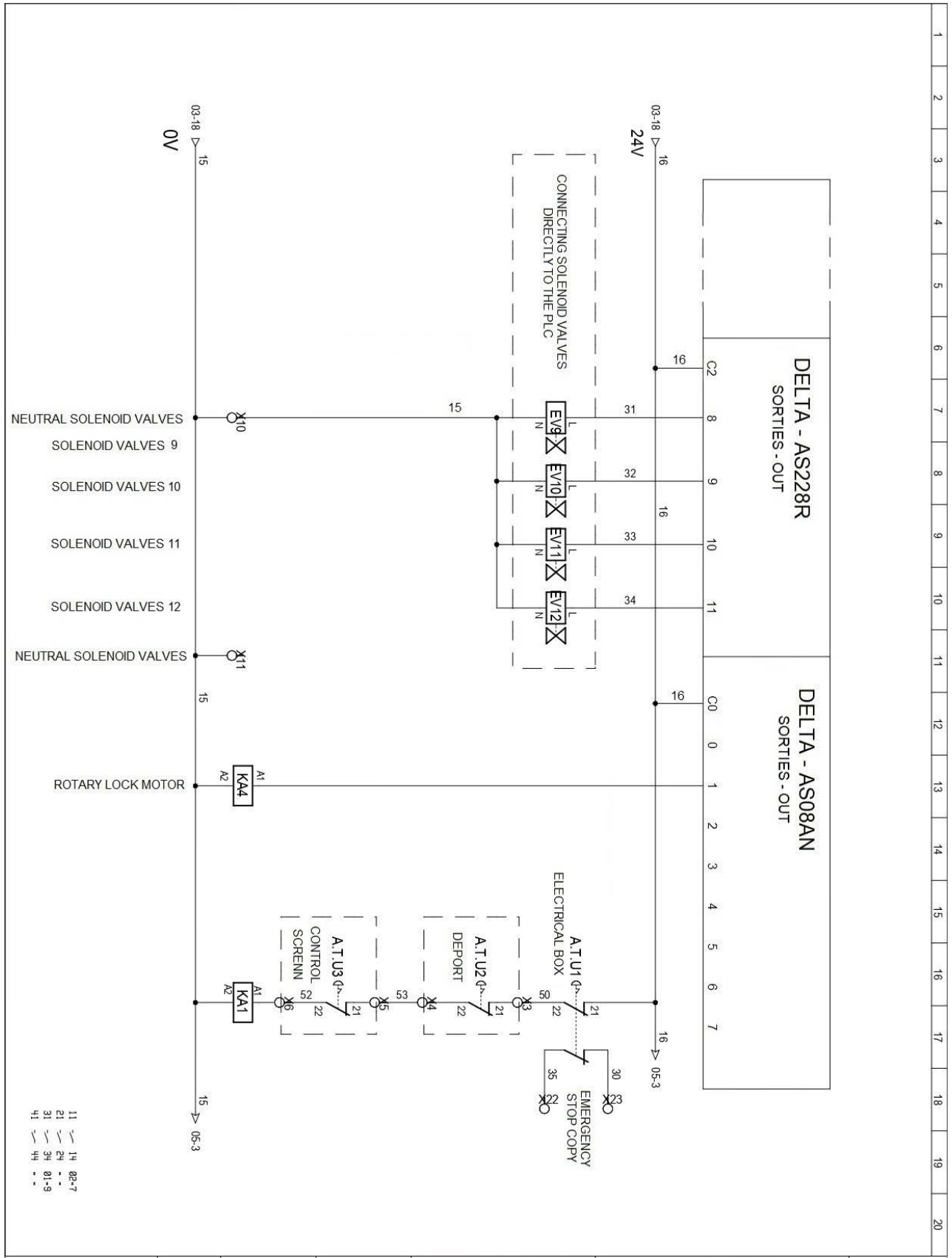
LINCOLN ELECTRIC
 N°: 05-57-80-79-79

DIGIFILTER - DELTA
 WITH ATV & ROTARY LOCK
 24V CONTROL

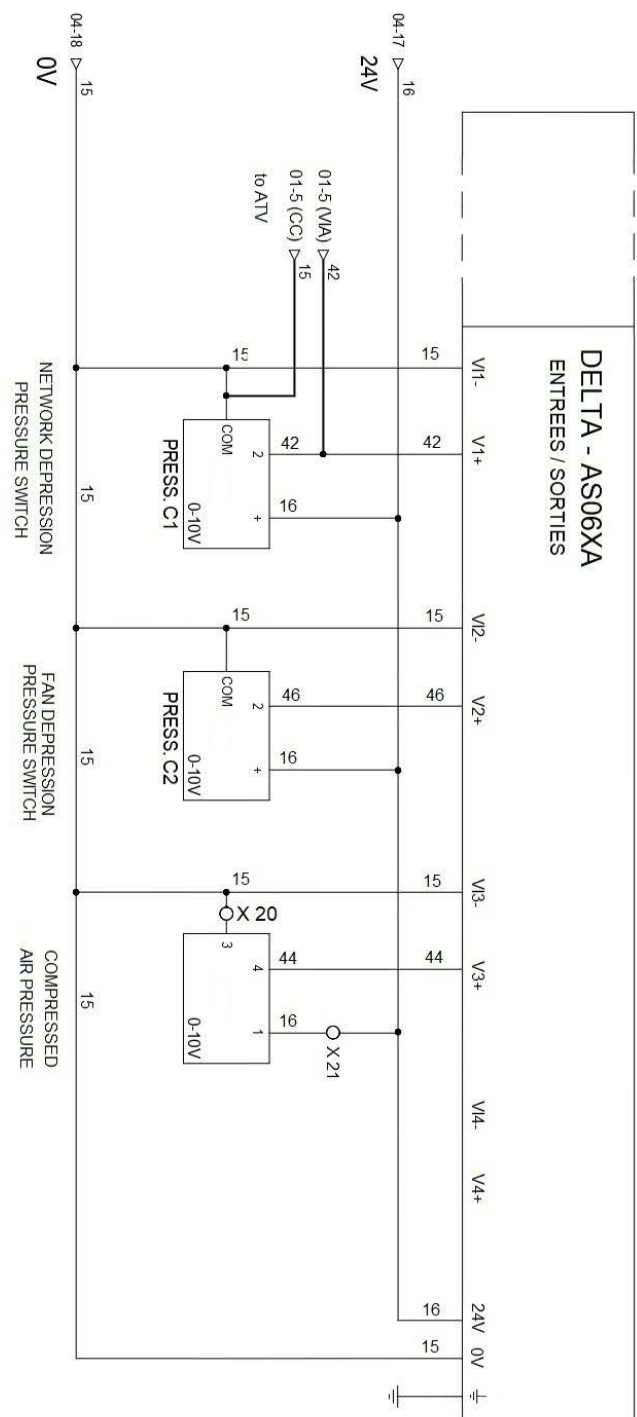


	DATE	NOM		DIGIFILTER - DELTA WITH ATV & ROTARY LOCK 24V CONTROL	FOLIO 03 ◀ 02 04 ▶	
	DESSINE	04/09/2022				Guillaume
	REALISATEUR					
APPROUVE			N°: 05-57-80-79-79			

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DESSINE REALISATEUR APPROUVE	DATE	NOM	LINCOLN ELECTRIC N°: 05-57-80-79-79	DIGIFILTER - DELTA WITH ATV & ROTARY LOCK 24V CONTROL	FOLIO
	09/01/2023	Guillaume			04
					03 05



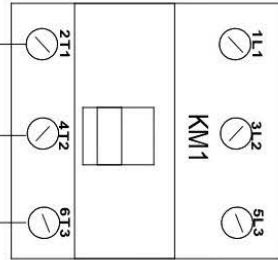
	DATE	NOM
DESSINE	09/01/2023	Guillaume
REALISATEUR		
APPROUVE		

LINCOLN
ELECTRIC
N°: 05-57-80-79-79

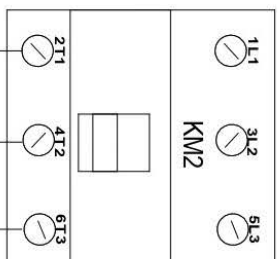
DIGIFILTER - DELTA
WITH ATV & ROTARY LOCK
24V CONTROL

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FAN ATV - 400V

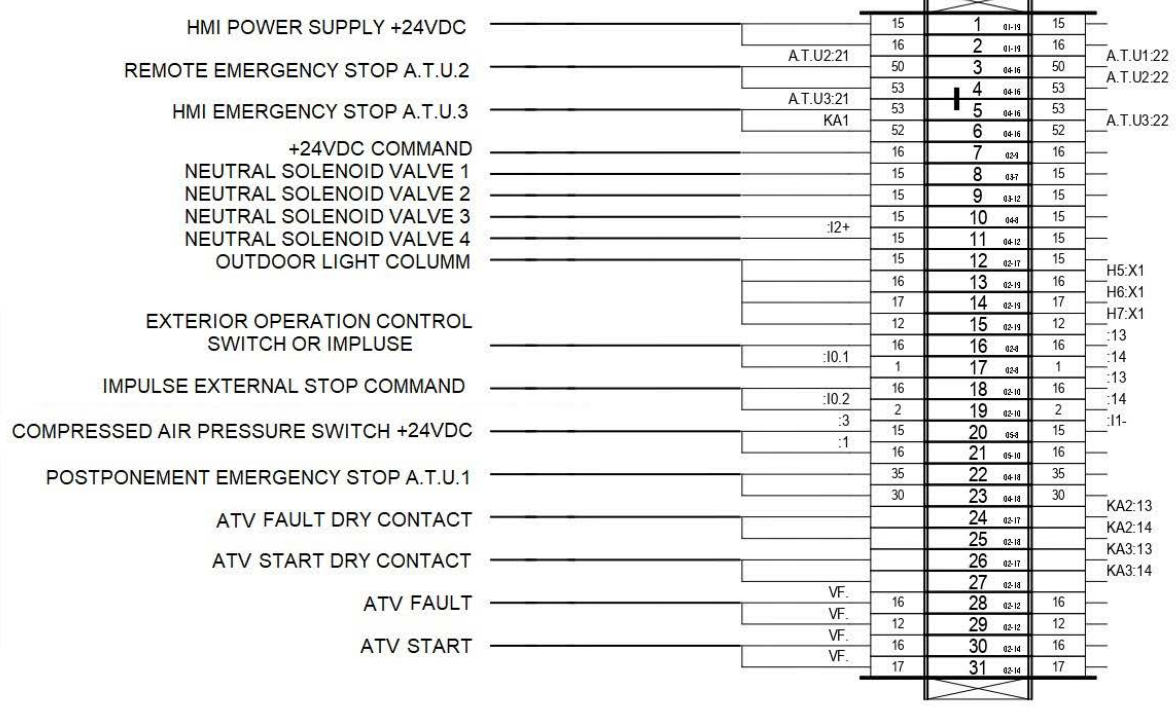


ROTARY LOCK - 400V

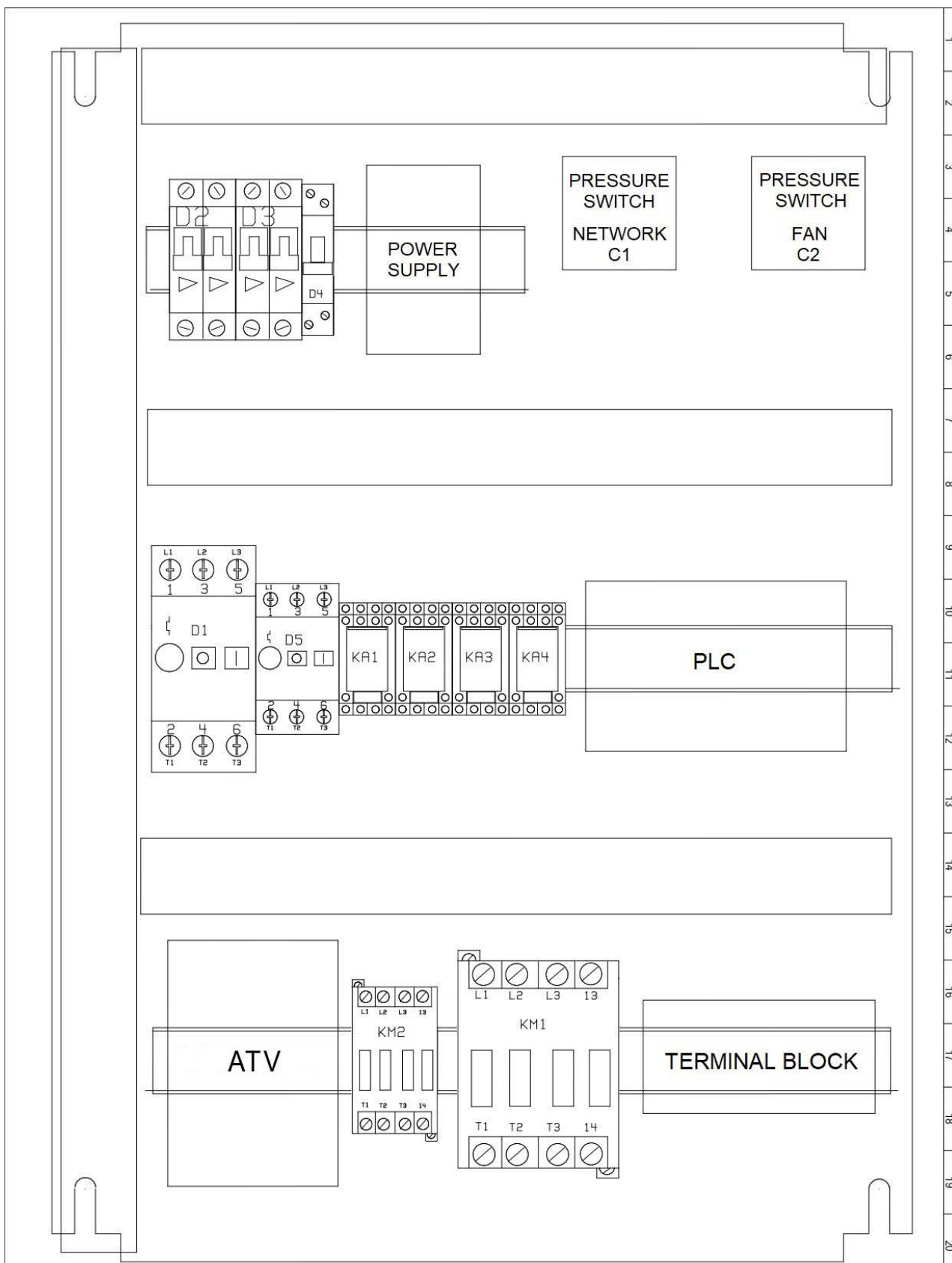


ELECTRICAL CABINET

ELECTRICAL CABINET
TERMINAL BLOCK



	DATE	NOM		DIGIFILTER - DELTA WITH ATV & ROTARY LOCK TERMINAL BLOC	FOLIO
DESSINE	09/01/2023	Guillaume			06
REALISATEUR					◀ 05 07 ▶
APPROUVE			N°: 05-57-80-79-79		



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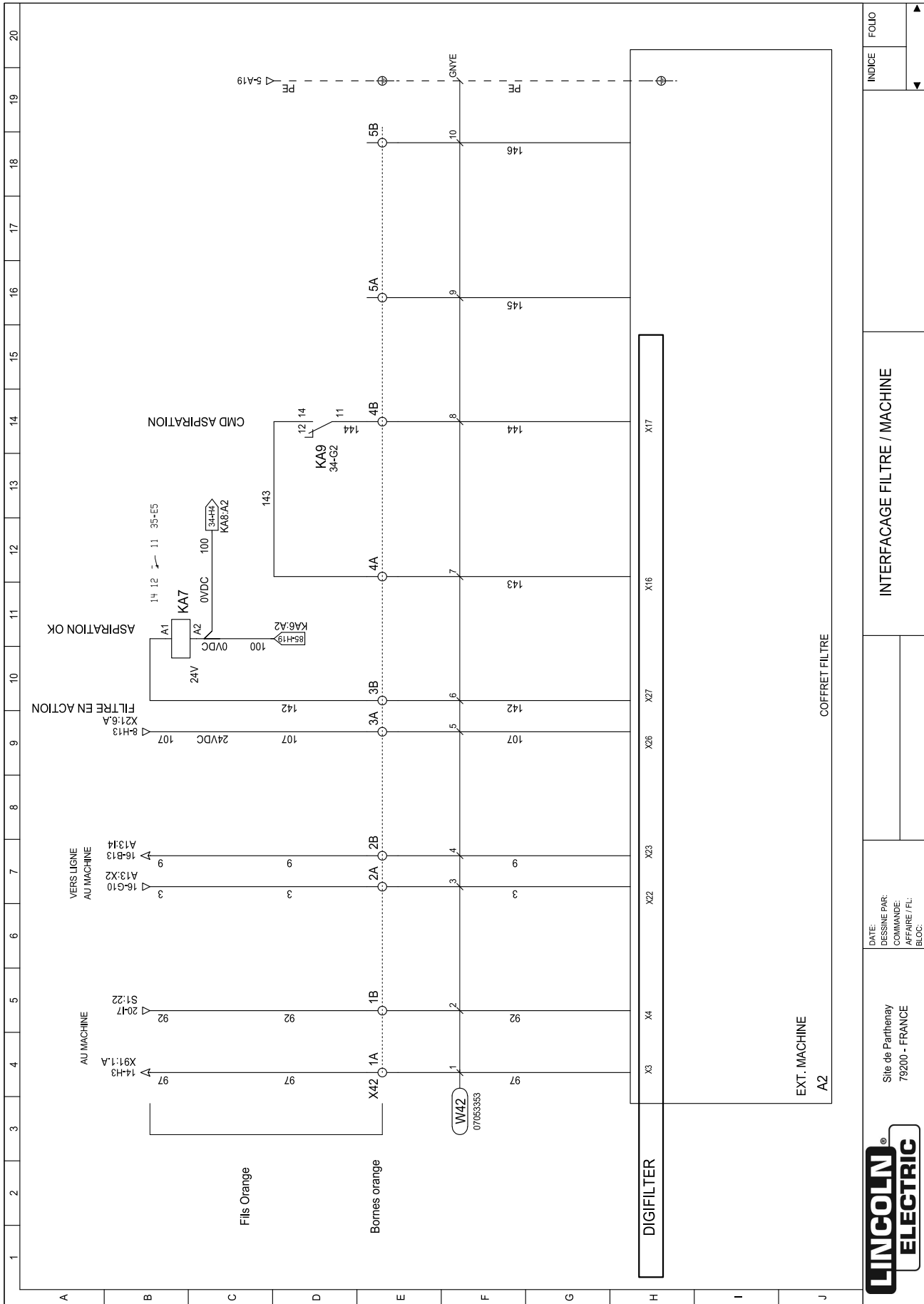
	DATE	NOM
DESSINE	09/01/2023	Guillaume
REALISATEUR		
APPROUVE		

LINCOLN
ELECTRIC
N°: 05-57-80-79-79

DIGIFILTER - DELTA
WITH ATV & ROTARY LOCK
IMPLANTATION

FOLIO
07
◀ 06 08 ▶

2.4 Automatic machine interconnection



Site de Parthenay
79200 - FRANCE

DATE:
DESSINE PAR:
COMMANDE:
AFFAIRE / FL:
BLOC:

INTERFACAGE FILTRE / MACHINE

INDICE FOLIO

3 - Spare parts

Ordering procedure:

Almost all the parts of a machine or installation are referenced in the photographs and sketches.

The descriptive tables contain three types of item:

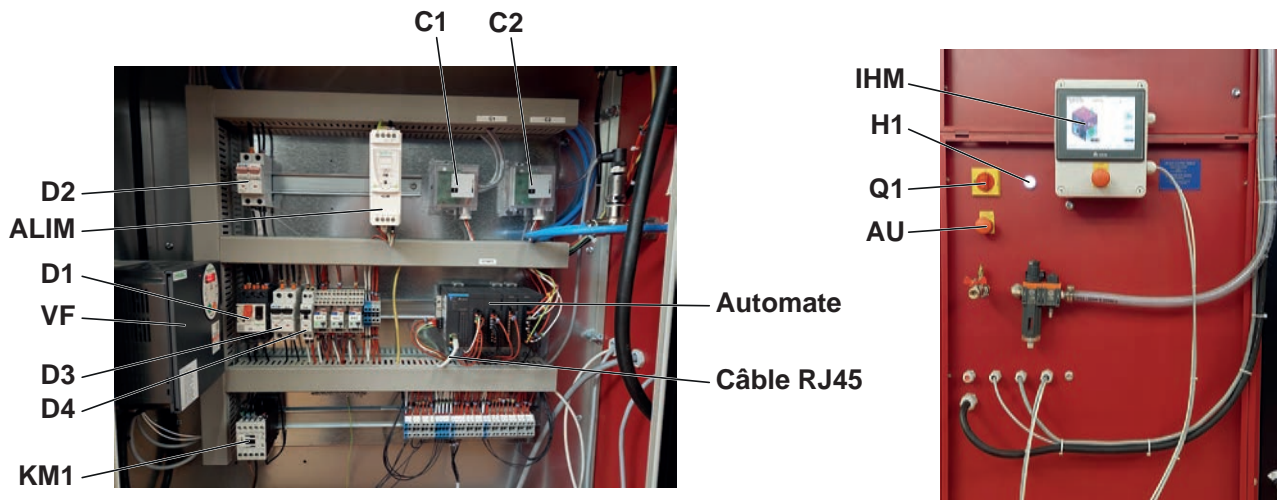
- items normally held in stock: ✓
- items not held in stock: ✗
- articles upon request: no reference

For items referenced in the photographs or sketches but not included in the tables, please send us a copy of the relevant page and highlight the relevant reference.

Example:

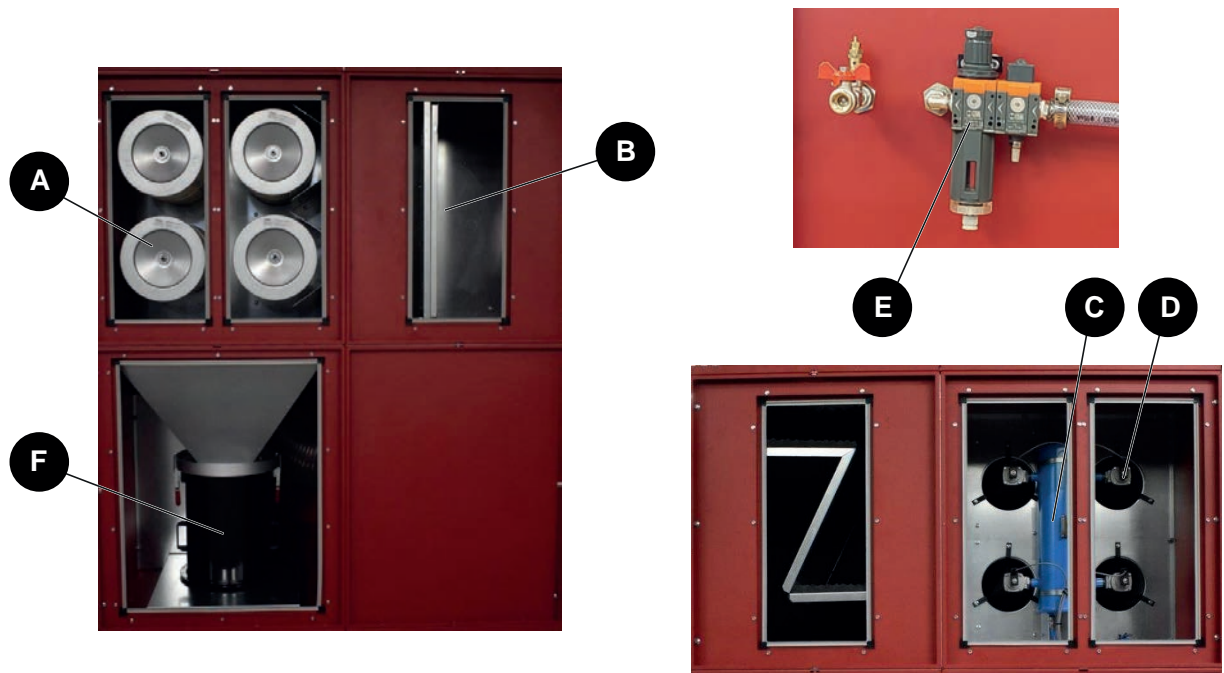
Ref	Part no	Stock	Description	Qty
E1	W000XXXXXX	✓	Machine interface board	
G2	W000XXXXXX	✗	Flow meter	
A3	P9357XXXX		Printed front plates	

3.1 Electrical components



Ref	Part no	Stock	Description	Qty
POWER	EM61000469	X	400/24 VDC 60 W power supply	1
Q1	Please enquire		Disconnecting switch	1
D1	Please enquire		Motor circuit breaker	1
D2	Please enquire		Two-pole circuit breaker, 2 A	1
D3	Please enquire		Two-pole circuit breaker, 1 A	1
D4	Please enquire		Phase + Neutral 2A circuit breaker	1
KM1	Please enquire		Contacteur - 400V	1
H1	Please enquire		White 380 V indicator	1
C1/C2	W000276149	✓	C1 system and C2 fan pressure switch	2
	EM61000483	X	Plastic pressure connector	2
	EM61000493	X	Crystal tube Ø10 – L10m	2
Emergency stop	Please enquire		Emergency stop	2
VF	W000381521	X	Variable drive ATV212 - 5.5KW - DIGIFILTER 4CD	1
	W000381522	X	Variable drive ATV212 - 7.5KW - DIGIFILTER 6CD	1
	W000381523	X	Variable drive ATV212 - 11KW - DIGIFILTER 8CD	1
	W000381524	X	Variable drive ATV212 - 15KW - DIGIFILTER 10CD	1
	W000381525	X	Variable drive ATV212 - 18.5KW - DIGIFILTER 12CD	1
HMI	EM61000513	✓	HMI screen - DELTA	1
PLC	EM61000514	✓	Complete DIGIFILTER PLC - DELTA	1
RJ45 cable	EM61000473	X	RJ45 cable connecting HMI/PLC - 15m	1

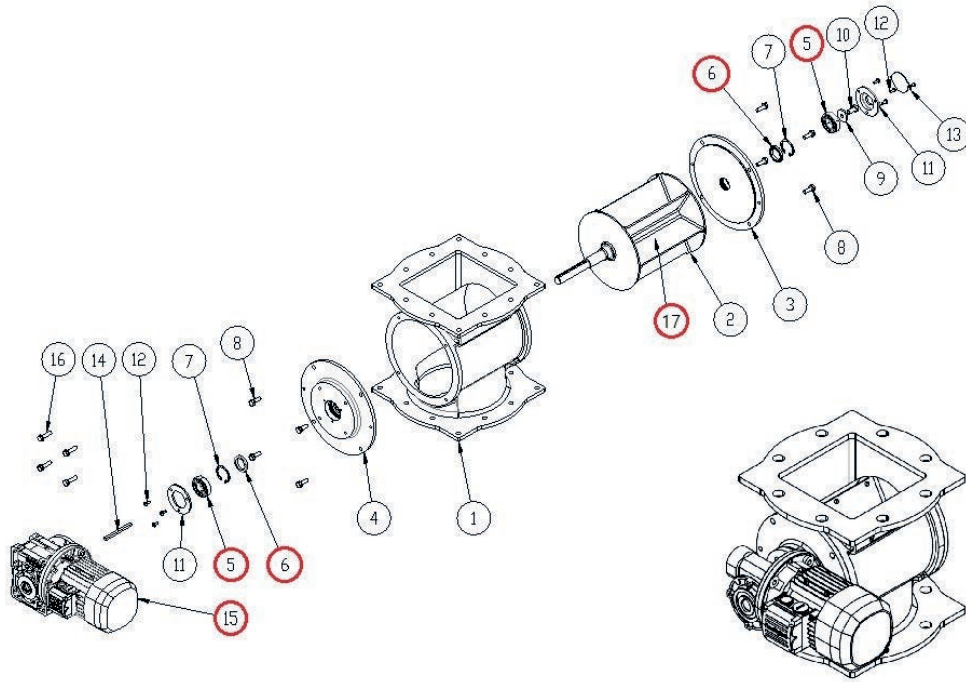
3.2 Mechanical components



Ref	Part no	Stock	Description	Qty
☛ For DIGIFILTER 2CD				
A	EM61000155	✓	Filter cartridge with PTFE membrane, 15M ²	2
	EM61000156	✗	<u>Application for oily fumes</u> Filter cartridge with PTFE impregnation	2
	W000277185		Filter cartridge support	2
B	W000379658	✓	Metal pre-filter (800mm x 295mm x 2mm)	1
C	W000342821	✗	Air reservoir kit, 2 solenoid valves	1
	EM61000466	✗	Reservoir support, 2 solenoid valves	1
D	S94002086	✓	Solenoid valve, 6.0D	2
E	EM61000470	✗	Pressure reducer filter	1
F	Please enquire		Dust drum	1
☛ For DIGIFILTER 4CD				
A	EM61000155	✓	Filter cartridge with PTFE membrane, 15M ²	4
	EM61000156	✗	<u>Application for oily fumes</u> Filter cartridge with PTFE impregnation	4
	W000277185		Filter cartridge support	4
B	W000379658	✓	Metal pre-filter (800mm x 295mm x 2mm)	2
C	W000342244	✗	Air reservoir kit, 4 solenoid valves	1
	EM61000467	✗	Reservoir support, 4 solenoid valves	1
D	S94002086	✓	Solenoid valve, 6.0D	4
E	EM61000470	✗	Pressure reducer filter	1
F	Please enquire		Dust drum	1
☛ For DIGIFILTER 6CD				
A	EM61000155	✓	Filter cartridge with PTFE membrane, 15M ²	6
	EM61000156	✗	<u>Application for oily fumes</u> Filter cartridge with PTFE impregnation	6
	W000277185		Filter cartridge support	6

B	W000379658	✓	Metal pre-filter (800mm x 295mm x 2mm)	3
C	W000342244	✗	Air reservoir kit, 4 solenoid valves	1
	EM61000467	✗	Reservoir support, 4 solenoid valves	1
	W000342821	✗	Air reservoir kit, 2 solenoid valves	1
	EM61000466	✗	Reservoir support, 2 solenoid valves	1
	D	S94002086	✓	Solenoid valve, 6.0D
E	EM61000470	✗	Pressure reducer filter	1
F	Please enquire		Dust drum	1
☛ For DIGIFILTER 8CD				
A	EM61000155	✓	Filter cartridge with PTFE membrane, 15M ²	8
	EM61000156	✗	<u>Application for oily fumes</u> Filter cartridge with PTFE impregnation	8
	W000277185		Filter cartridge support	8
B	W000379658	✓	Metal pre-filter (800mm x 295mm x 2mm)	3
C	W000342244	✗	Air reservoir kit, 4 solenoid valves	2
	EM61000467	✗	Reservoir support, 4 solenoid valves	2
D	S94002086	✓	Solenoid valve, 6.0D	8
E	EM61000470	✗	Pressure reducer filter	1
F	Please enquire		Dust drum	2
☛ For DIGIFILTER 10CD				
A	EM61000155	✓	Filter cartridge with PTFE membrane, 15M ²	10
	EM61000156	✗	<u>Application for oily fumes</u> Filter cartridge with PTFE impregnation	10
	W000277185		Filter cartridge support	10
B	W000379658	✓	Metal pre-filter (800mm x 295mm x 2mm)	4
C	W000342244	✗	Air reservoir kit, 4 solenoid valves	2
	EM61000467	✗	Reservoir support, 4 solenoid valves	2
	W000342821	✗	Air reservoir kit, 2 solenoid valves	1
	EM61000466	✗	Reservoir support, 2 solenoid valves	1
D	S94002086	✓	Solenoid valve, 6.0D	10
E	EM61000470	✗	Pressure reducer filter	1
F	Please enquire		Dust drum	2
☛ For DIGIFILTER 12CD				
A	EM61000155	✓	Filter cartridge with PTFE membrane, 15M ²	12
	EM61000156	✗	<u>Application for oily fumes</u> Filter cartridge with PTFE impregnation	12
	W000277185		Filter cartridge support	12
B	W000379658	✓	Metal pre-filter (800mm x 295mm x 2mm)	4
C	W000342244	✗	Air reservoir kit, 4 solenoid valves	2
	EM61000467	✗	Reservoir support, 4 solenoid valves	2
	W000342821	✗	Air reservoir kit, 2 solenoid valves	2
	EM61000466	✗	Reservoir support, 2 solenoid valves	2
D	S94002086	✓	Solenoid valve, 6.0D	12
E	EM61000470	✗	Pressure reducer filter	1
F	Please enquire		Dust drum	2

3.3 Rotary discharger



Ref	Part no	Stock	Description	Qty
	EM61000478	✗	Complete rotary discharger - after 2021	1
5	EM61000481	✗	Set of 2 ball bearings - Rotary discharger after 2021	1
6	EM61000482	✗	Set of 2 lip seals - Rotary discharger after 2021	1
15	EM61000479	✗	Complete geared motor - Rotary discharger after 2021	1
17	EM61000480	✗	Set of 6 blades - Rotary discharger after 2021	1

