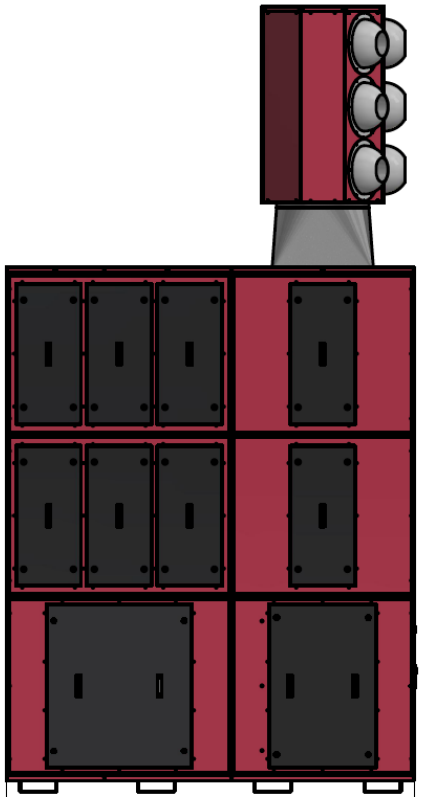
FILTER

AMBICLEAN 8000 - 12000 - 16000

SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE

N° EM61000074 - EM61000075 - EM61000076



EDITION : EN
REVISION : A
DATE : 02-2021

Instructions for use

REF : **8695 8020**

Original instructions

LINCOLN® ELECTRIC

Thank for the trust you have expressed by purchasing this equipment, which will give you full satisfaction if you follow its instructions for use and maintenance.

Its design, component specifications and workmanship comply with applicable European directives.

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

The manufacturer will not be held responsible where items not recommended by themselves are associated with this product.

For your safety,there follows a non-restrictive list of recommendations or requirements, many of which appear in the employment code.

Finally we would ask you kindly to inform your supplier of any error which you may find in this instruction manual.

CONTENTS

CE	AMBICLEAN
	AMBICLEAN 8000 – 12000 - 16000
	TYPE: EM61000074 – EM61000075 – EM61000076

1) CE DECLARATION OF CONFORMITY/EU

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	TYPE
AMBICLEAN 8000	**EM61000074**
AMBICLEAN 12000	**EM61000075**
AMBICLEAN 16000	**EM61000076**

NUMBER: See identification plate

2) This equipment complies with European directives.

◙ N° 2006/42/CE ◙ N° 2011/65/CE ◙ N° 2014/30/CE

3) Based on the following harmonised standards:

EN ISO 12100:2010
EN ISO 13850:2008
EN ISO 13857:2008
EN ISO 12499
EN 60204-1:2006 / AC:2010
EN ISO 61439-1 : 2011
EN ISO 61439-2 : 2011

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

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5) Manufacturer..

LINCOLN ELECTRIC FRANCE SAS
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76120 – LE GRAND QUEVILLY

CERGY, 01/02/2021

A - INTRODUCTION

USING THE MANUAL

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

DESCRIPTION OF PICTOGRAMS

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

DANGER: indication used when failure to follow the instructions could lead to a serious hazard for personnel.

WARNING: indication used when failure to follow the instructions could lead to damage to the machine, associated elements or the surroundings.

This symbol shows that the description is intended for specialised personnel.

B - GENERAL SAFETY INSTRUCTIONS

ELECTRICAL SAFETY

Connection to the mains

Before you connect your machine, please make sure that:

— The meter, the overintensity protection system and the electrical installation are compatible with its maximum power rating and its supply voltage.

— It can be connected, in a single-phase or three-phase with earth system, to a socket compatible with the plug on its power cord (mobile equipment).

— If the cable is connected to a fixed point, the earth connection, if there is one, may never be cut off by the system offering protection from electric shocks.

— The switch, if there is one, is set to OFF.

Workstation

Arc welding and cutting requires strict compliance with safety requirements in respect of electrical currents (Order of 14 December 1988).

Working on the machine

Before any internal checking or repairs, make sure that the machine has been disconnected from the electrical system by locking it out:

— Accidental connection of the cable of a fixed system has been made impossible

— Cutting off by means of a fixed connection device relates to all poles (phase and neutral. It must be in the OFF position, with no possibility of being put into service by mistake

Some machines have an HV/HF arc ignition circuit (indicated by a plate). Never work inside such a box.

Any work on electrical systems must be carried out by persons qualified for that purpose (Decree 88-1056 of 14 November 1988, Section VI, Art 46).

Maintenance

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 enclosures and ducts may not be carried out in a haphazard manner (Section VI, Art. 47 Decree 88-1056 of 14 November 1988).

— 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.

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 operating position 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.

PERSONAL PROTECTION

Risks of external injury relating to welding operations

Whole body

— The operator must be clothed and protected to suit the requirements of the job.
— Make sure that no part of the bodies of operators and helpers can come in contact with metal pieces or parts that are live or are liable to become live accidentally.
— Do not wind electricity cables around the body.
— Keep safety guards and panels in place.
— The operator must always wear personal insulating protection (Order of 14 December 1988, Section III).
— The protection must be kept dry to prevent electric shocks if it is wet, or ignition in the presence of oil.

Personal protective equipment worn by operators and their helpers - gloves, aprons, safety shoes - offer the added benefit of protecting them from burns due to hot parts, splatter and slag.
Make sure the PPE is in good condition and replace it before it ceases to offer protection.

Face and eyes

It is indispensable to protect the following:
— Eyes, from arc injury (dazzling due to visible light from the arc, and infrared and ultraviolet radiation).
— Hair, face and eyes from welding splatter and projection of slag during weld cooling

The welding mask, when used under or without a helmet, must always be equipped with a protective filter, the shade of which depends on the intensity of the welding arc current (Standards NF S77-104 A 88-221 A88-222).

The coloured filter may be protected from impacts and splatter by a transparent glass located on the front of the mask.

If the filter is replaced, use another one with the same part number (shade number).

Persons in the vicinity of the operator, especially any helpers, must be protected by means of suitable screens, anti-UV goggles or, if needed, masks with suitable protective filters (EN 139).

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

— The fumes from these solvents can be changed into toxic gases when subjected to arc radiation, including from a distance.

— Such solvents may therefore not be used in locations where electric arcs occur, if the solvents are not in a sealed enclosure.

Work in confined spaces

Examples:

— Mine roads
— Piping and pipelines
— Ship docks, pits, manholes, cellars
— Tanks
— Ballast tanks
— Silos
— Reactors

Special precautions must be taken before undertaking welding operations in such enclosures, where suffocating and poisoning and fire and explosion risks are very great.

A work permit procedure setting out all the safety measures must systematically be set up.

Make sure that ventilation is appropriate, paying special attention to:

— under-oxygenation
— over-oxygenation
— excess fuel gas

FILTRATION OF FUMES AND DUST

Important

Mechanical or electrostatic filtration systems are effective for the filtration of solid but not gaseous particles (exterior discharge).

If recycling is effective (not recommended), make sure the workplace where the machine or machines are placed is properly ventilated, so as to not reach the OELV (occupational exposure limit values) for the specific gaseous pollutants generated by the process (welding, cutting).

Field of use

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

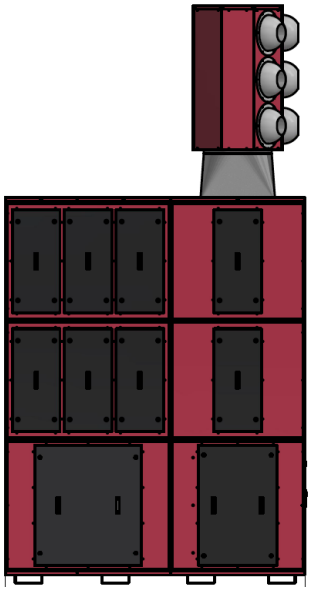
— Zinc, paper, flour, plant leaves, graphite, aluminium and other such dust is to be excluded, because electrostatic discharge or welding splatter would present a risk for those using the filter.
— The air flow through the filter medium must not be at a temperature above 80 °C.
— This machine is not designed for extracting chemicals.
— The choice of machine 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

C - 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" UI 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.

Part numbers

AMBICLEAN 8000	**EM61000074**
AMBICLEAN 12000	**EM61000075**
AMBICLEAN 16000	**EM61000076**
Additional soundproofing: Soundproofing foam and reinforced doors	
AMBICLEAN 8000	**EM61000080**
AMBICLEAN 12000	**EM61000081**
AMBICLEAN 16000	**EM61000082**

Benefits

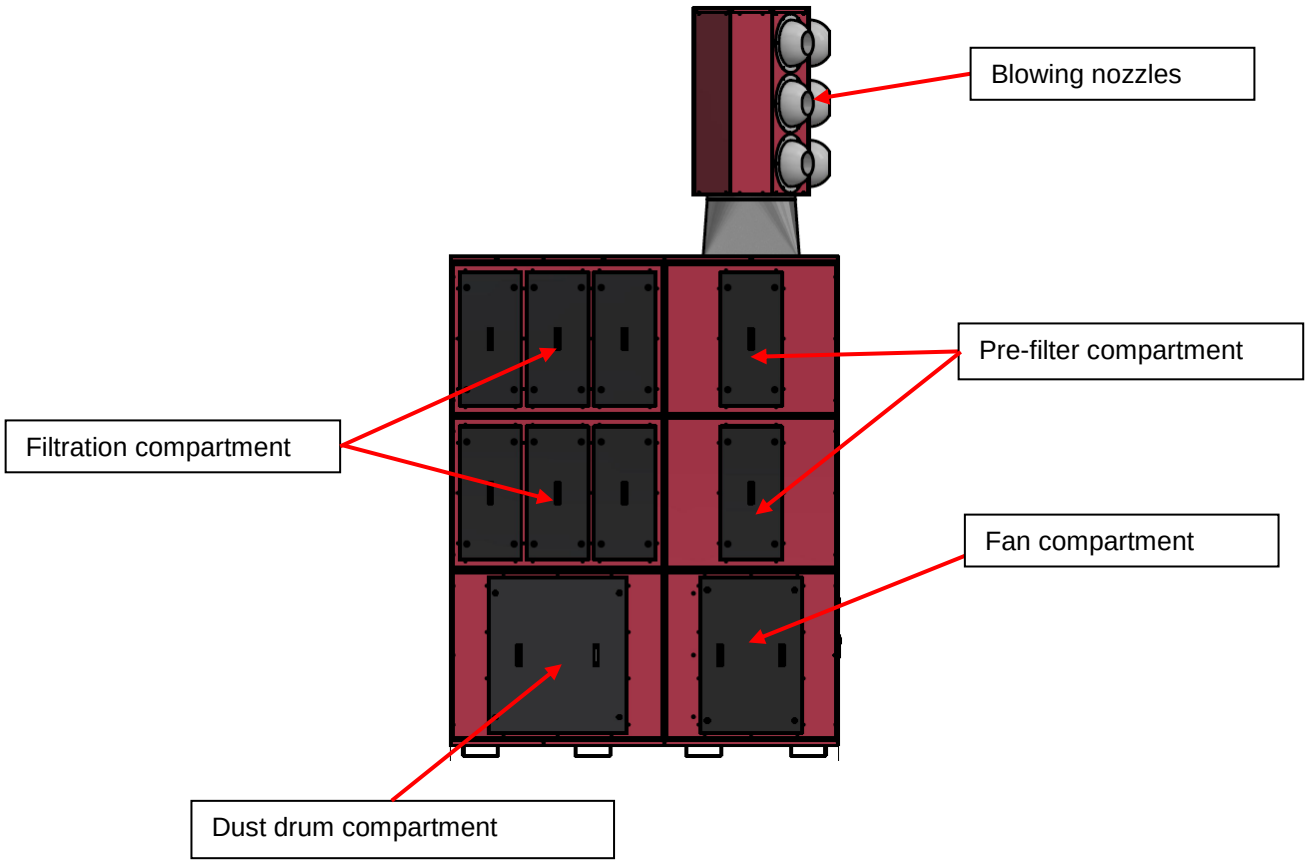
- The operating cycle is managed by a PLC associated with a 5.7" UI screen.
- Very high unclogging efficiency - Self-cleaning of cartridges during operation.
- High filtration efficiency thanks to filter cartridges with PTFE membrane.
- Low sound level
- Three operating modes possible: Manual – Weekly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

Delivery :

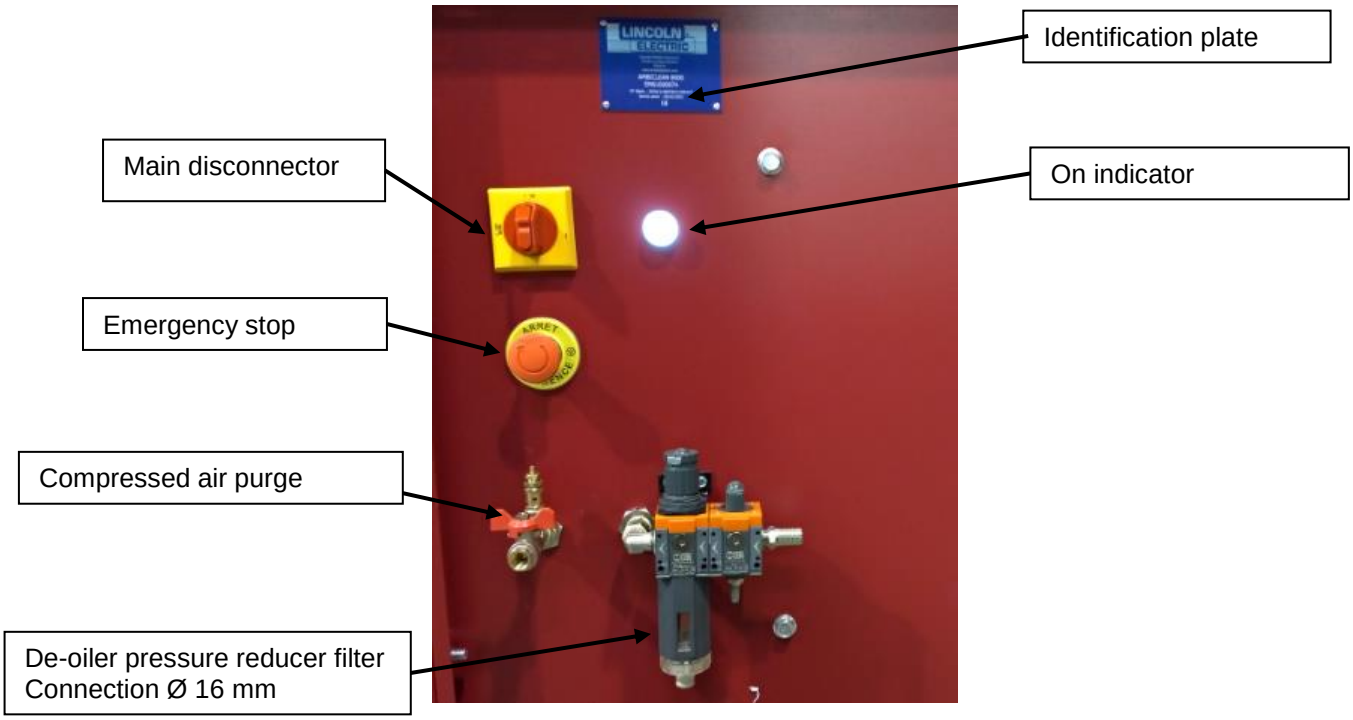
- **AMBICLEAN** is delivered in a single unit including the fan and the filtration components.
- The blowing nozzles box is supplied separately.

D - TECHNICAL DESCRIPTION

COMPOSITION OF AMBICLEAN



Components fixed to AMBICLEAN



DESCRIPTION OF THE UI SCREEN: HOME PAGE

Operating mode:
- Manual
- Weekly clock
- Automatic
- Automatique

Settings info (Hz – kW)

Compressed air pressure

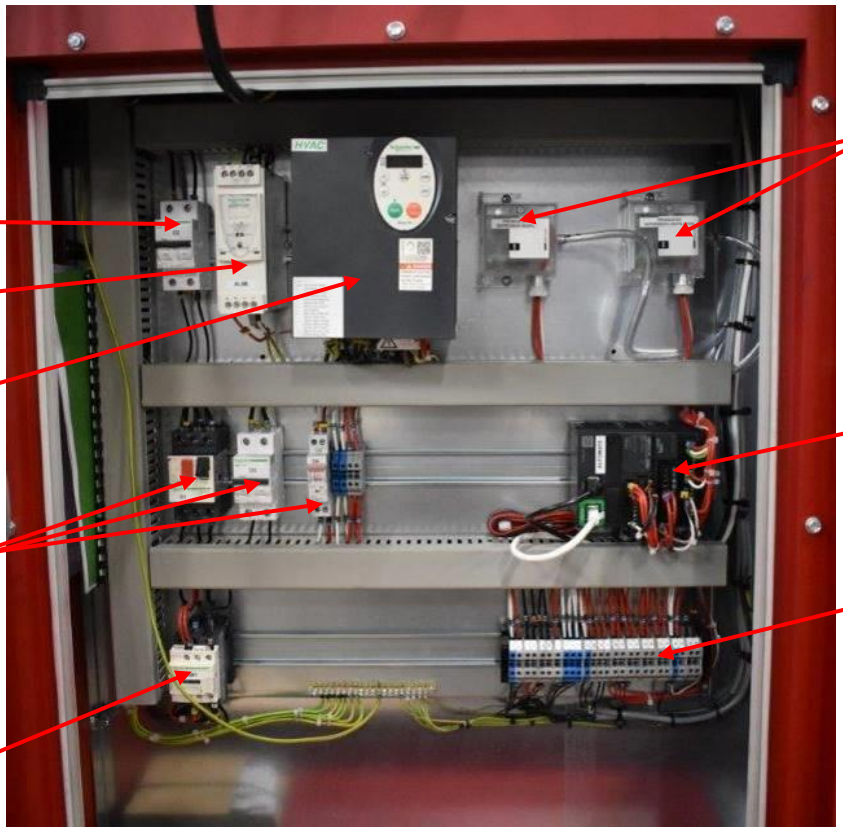
Next screen

Previous screen

Unclogging screen

Fault management

COMPOSITION OF THE ELECTRICAL CABINET



Unclogging trigger threshold pressure switches and filter saturation

Circuit breaker

400 / 24 V power supply

Variable frequency drive

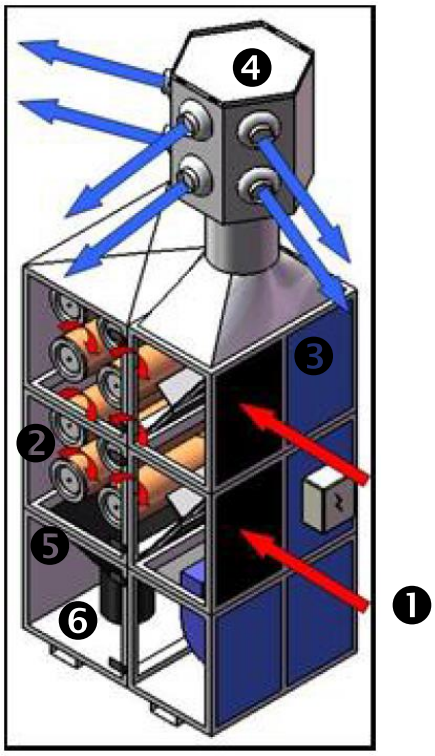
PLC

Circuit breakers

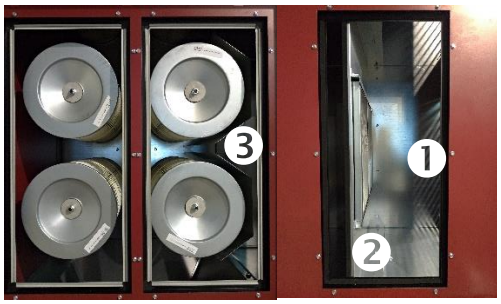
Connecting terminal block

Contactor

OPERATING PRINCIPLE



Operating principle of the unclogging filter	
1	Polluted air is distributed in the filter after passing through the pre-filter/baffle compartment.
2	Filter cartridges purify the air up to 99.9% and more
3	The cartridges are unclogged by a strong surge of air
4	The filtered air is driven out into the expansion chamber (at the rear of the filter)
5	Dust falls into the recovery hopper
6	The waste is removed using the dust drums



Reference 1	Air inlet compartment
Reference 2	Metal pre-filters: prevent incandescent particles from entering the filtering area
Reference 3	Baffles: Distribute the flow more evenly in the filtration zone

Maintenance: the filtering 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 filtering cartridges).

CHART OF AN OPERATING CYCLE

Unclogging operates with the help of two digital negative pressure sensors
— 2 pressure sensors C1 and C2

Two operating modes may be selected :

— Unclogging without threshold :

— Online cycle when the fan is operating.

— Offline cycle after the fan has stopped.

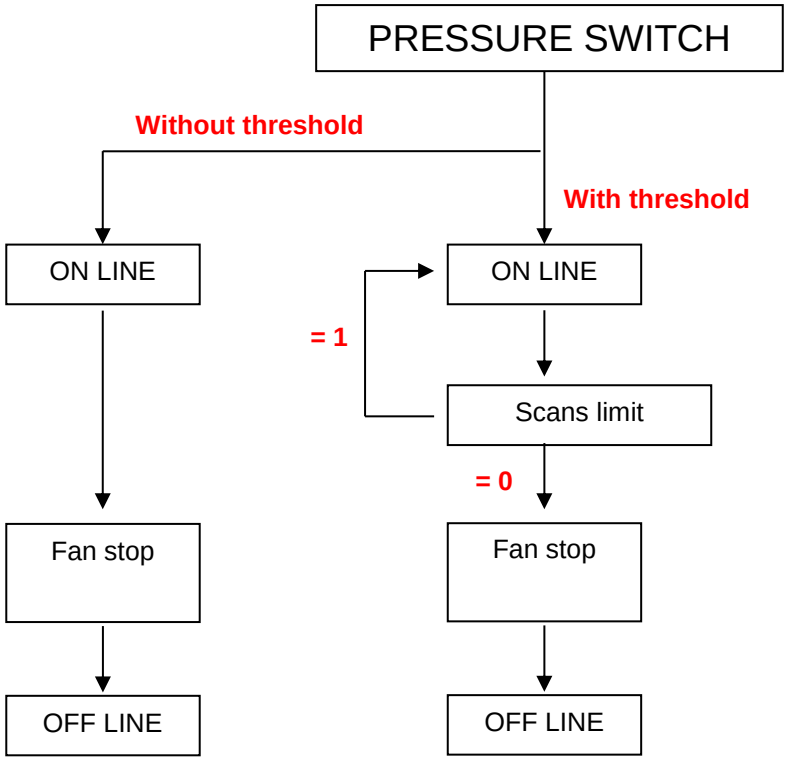
The (offline) unclogging time depends on the number of cycles set in the Unclogging page of the UI.

— Unclogging with threshold :

— Online cycle when the fan is operating based on a preset saturation limit (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 cartridge head loss has not dropped below the saturation limit, a new cycle starts.



Saturation alarm

The **AMBICLEAN** has an alarm system that monitors the cartridge saturation conditionThe pressure difference through the cartridges is continuously monitored. When the limit value of the pressure difference is reached, a safety indicator on the UI screen is displayed and a fault is logged. In that case, the metal pre-filters and filter cartridges must imperatively be inspected.

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 negative pressure drops below the limit value, the Online unclogging cycle stops; otherwise, a new cleaning cycle starts again.
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 as follows:

— 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 UI. 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.

Process efficiency control alarm associated with the ICP function

The **AMBICLEAN** continuously monitors the negative pressure values at the filter inlet and outlet. The values measured are displayed in Pascal on the Measurements screen of the UI. If the permitted values are exceeded, the screen will display a min or max process efficiency fault, and the Out of Order logo. That major malfunction must be remedied to retain the efficiency of the **AMBICLEAN**.

AMBICLEAN information

— Compressed air pressure: nominal working pressure 4.5 bar; max. 5.5 bar

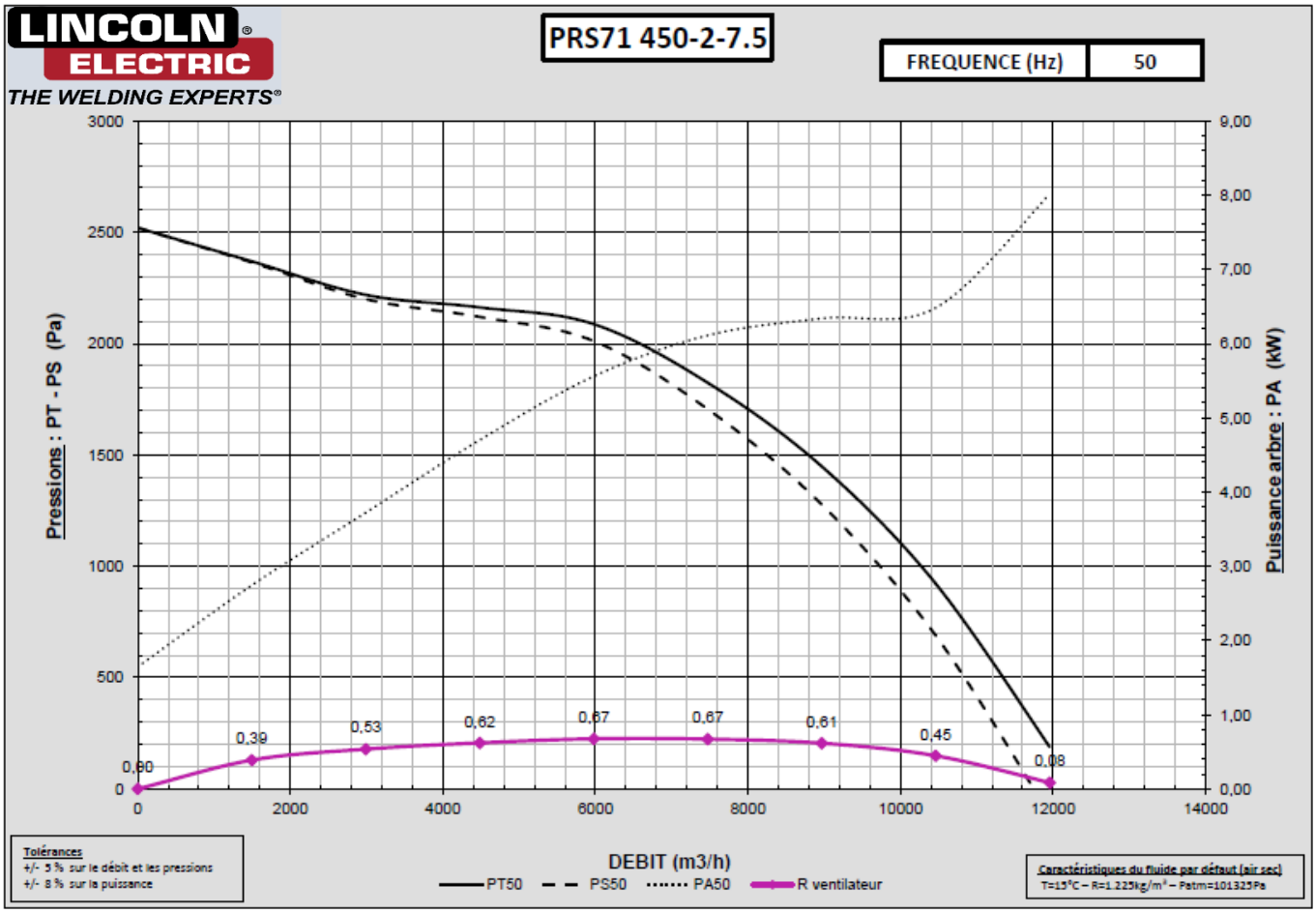
— Compressed air connection: coupling with 1/2" inner diameter – Diameter 16mm.

— Compressed air consumption: tank with 22 litres of air at atmospheric pressure for consumption of 6/7L per pulse depending on the set operating pressure.

FAN OF THE AMBICLEAN 8000

Type :	PRS71 450 centrifugal fan – 2 poles
Turbine diameter :	450mm
Power :	7.5 kW
Operating point:	9000 m³/h at 1200 Pa at 50 Hz
Voltage :	400V
Frequency :	50 Hz
Rotation speed :	2800 rpm
Sound level :	79 dB (free field)
Weight :	150 Kg
fan inlet Ø:	450 mm

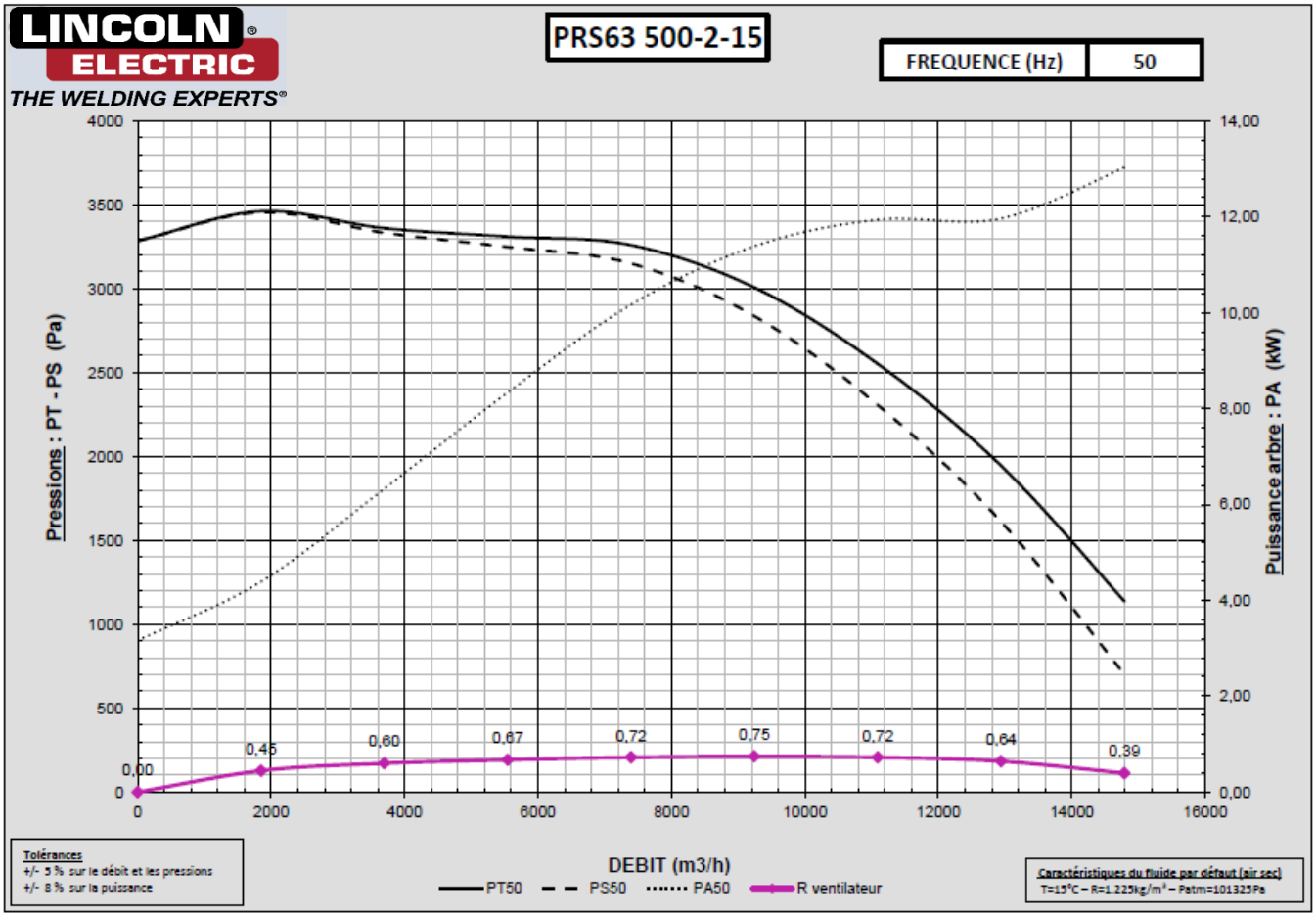
Fan PRS71 450 - 2 - 7.5 kW



FAN OF THE AMBICLEAN 12000

Type :	PRS63 500 centrifugal fan – 2 poles
Turbine diameter :	500mm
Power :	15 kW
Operating point:	13000 m³/h at 1500 Pa at 50 Hz
Voltage :	400V
Frequency :	50 Hz
Rotation speed :	2800 rpm
Sound level :	84 dB (free field)
Weight :	233 Kg
fan inlet Ø:	500 mm

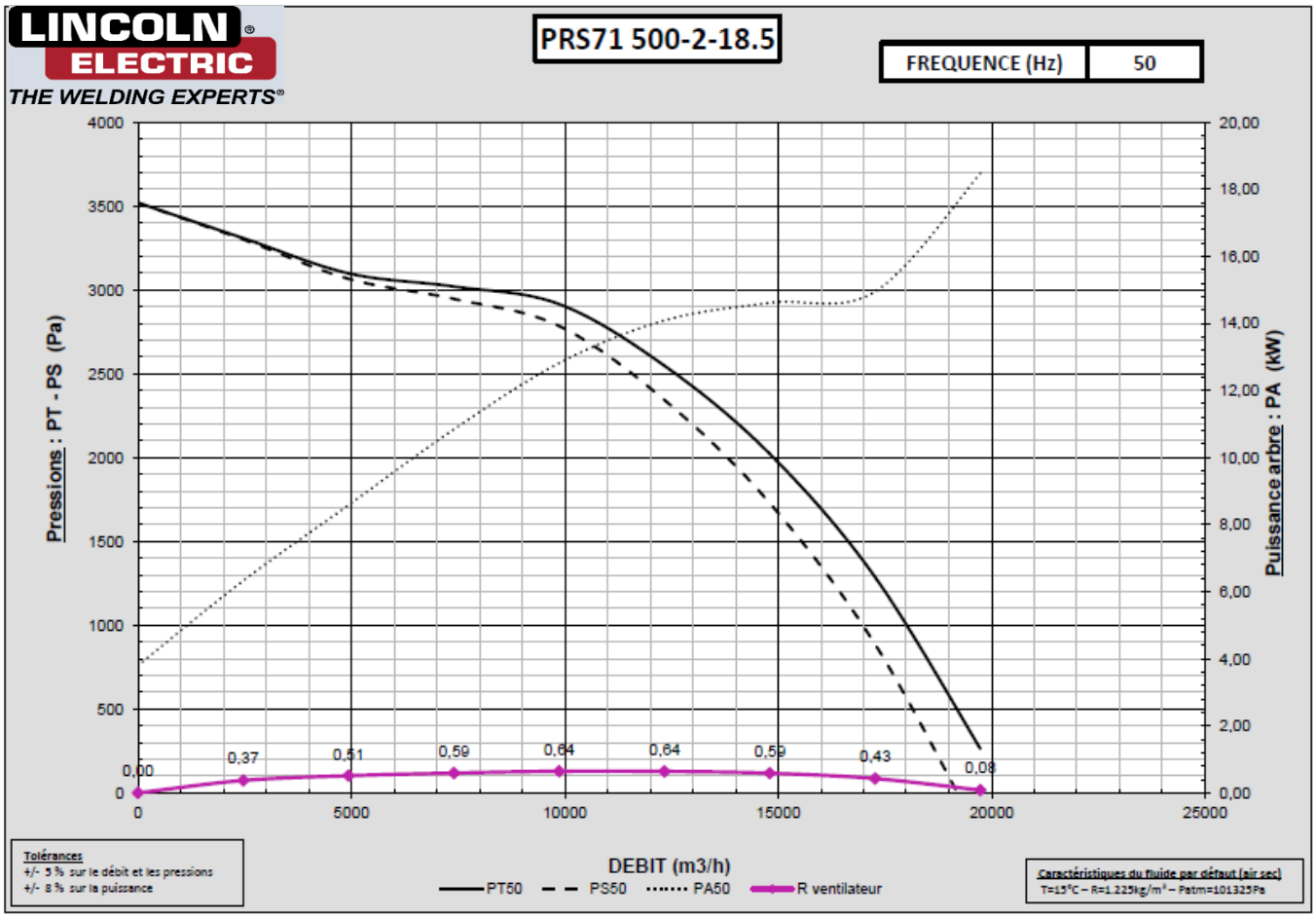
Fan PRS63 500 - 2 - 15 kW



FAN OF THE AMBICLEAN 16000

Type :	PRS71 500 centrifugal fan – 2 poles
Turbine diameter :	500mm
Power :	18,5 kW
Operating point:	16000 m³/h at 1300 Pa at 50 Hz
Voltage :	400V
Frequency :	50 Hz
Rotation speed :	2800 rpm
Sound level :	84 dB (free field)
Weight :	248 Kg
fan inlet Ø:	500 mm

Fan PRS71 500 - 2 – 18.5 kW

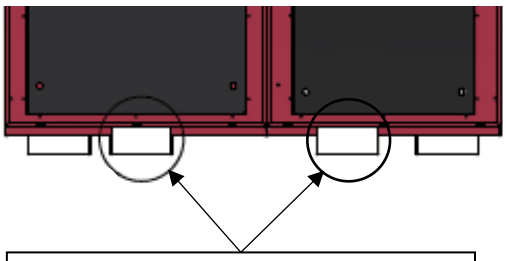


E - INSTALLATION OF THE AMBICLEAN

MONTAGE

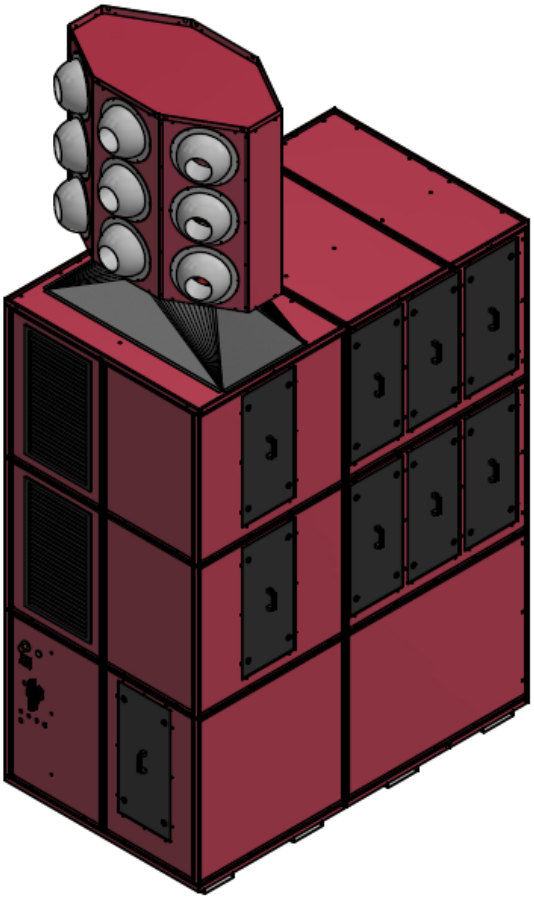
AMBICLEAN is delivered in one part, and you only need to place it where it is needed in the workshop. The filter can be handled with a lift truck thanks to the fork spaces provided under the frame. The box with the blowing nozzles must then be placed on **AMBICLEAN**.

Weight of AMBICLEAN 8000 : 1000 Kg
Weight of AMBICLEAN 12000 : 1300 Kg
Weight of AMBICLEAN 16000 : 1600 Kg



Fork spaces for lift truck

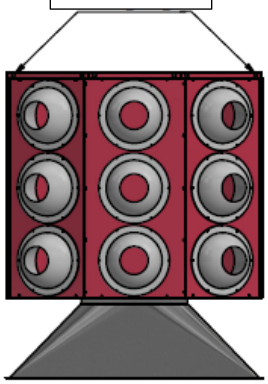
Assembling the nozzle



Nozzle assembly

Sling the nozzle above the filter. Add filler under the square-round adapter before fixing it with self-tapping screws

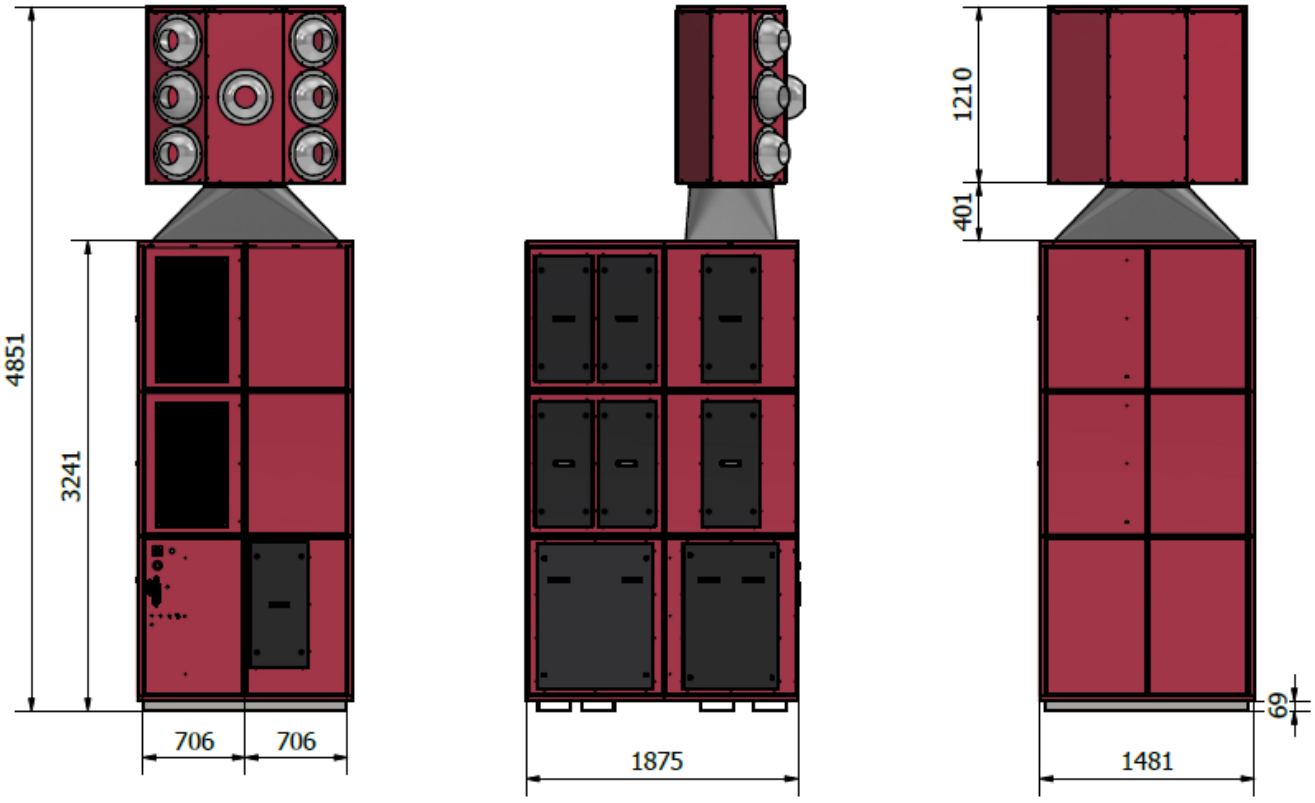
Slinging



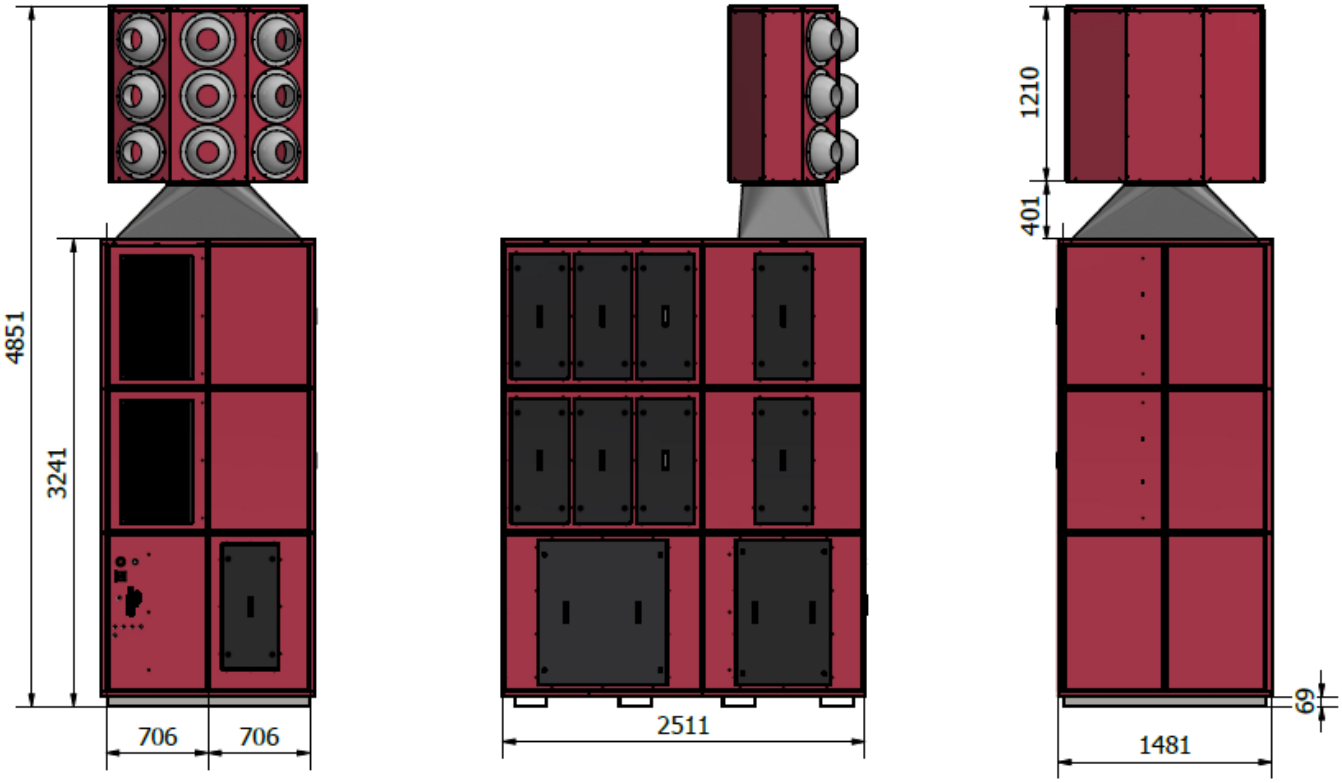
DIMENSIONS AND LAYOUT

- The clearance required for opening the doors is 600mm.
- A 500 mm technical area over the perimeter of the unit must be provided.
- Connection of the compressed air pressure reducer filter Ø16mm

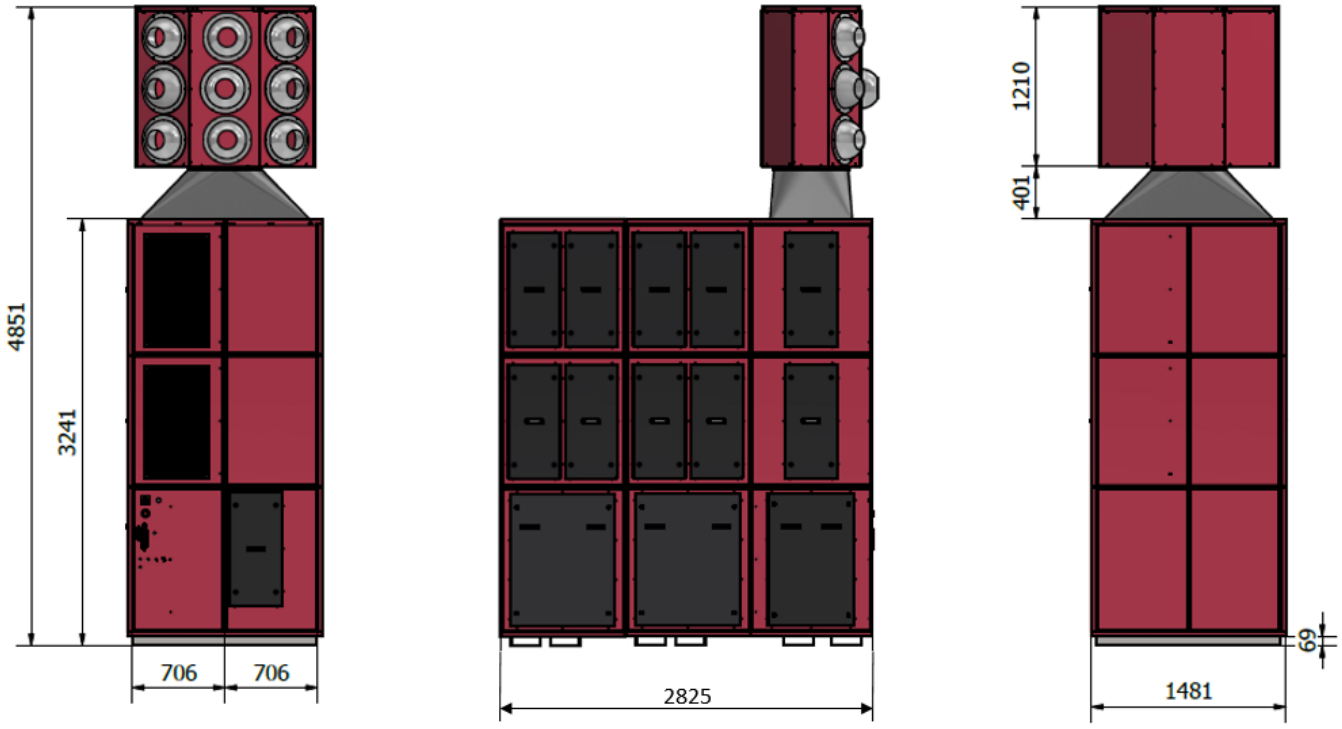
Dimensions of AMBICLEAN 8000 :



Dimensions of AMBICLEAN 12000 :



Dimensions of AMBICLEAN 16000 :



STEP-BY-STEP STARTING OF AMBICLEAN

In order to guarantee easy and complete starting up, here is the order of the different key stages that must be carried out:

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

CONNECTION TO THE MAINS

- Three-phase 400V power supply without neutral – 50 Hz
- Compressed air supply 5 Bars minimum.

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.

Recommendation

Part nos of electrical cables (kW)	MAINS VOLTAGE 50 Hz		
	230V single phase	230 3PH	400 3PH
	Section (mm²)		
4			4x2.5
5.5			4x2.5
7.5			4x4
9			4x4
11			4x6
15			4x6
18.5			4x10
22			4x10
30			4x16
37			4x25
55			4x35

Part nos of electrical cables

Cable section	Part no
3x1.5 mm²	W000010098
3x2.5 mm²	W000010099
4x2.5 mm²	W000010100
4x4 mm²	W000010101
4x6 mm²	W000010102
4x10 mm²	W000010103
4x16 mm²	W000010104
4x25 mm²	W000010105
4x35 mm²	W000010106

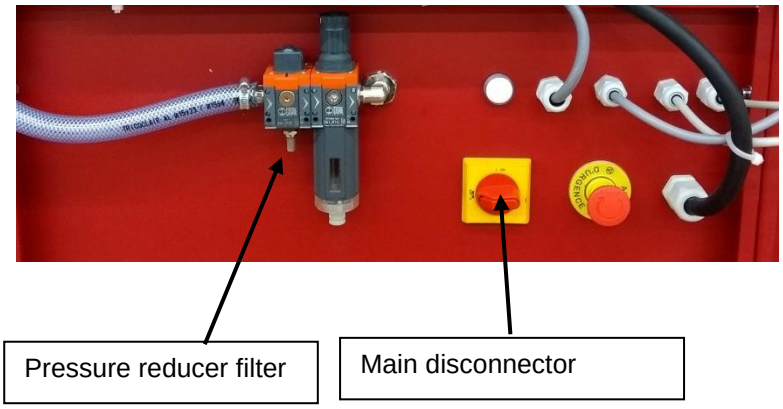
1- Electricity supply :

The power supply is to be connected to the terminals of the main disconnector on the side panel of the **AMBICLEAN**.
Use a multi-conductor cable depending on the model and connect the three phases to the three terminals of the disconnector and the earth bar provided.

- **AMBICLEAN** 8000 : 4G 4
- **AMBICLEAN** 12000 : 4G 6
- **AMBICLEAN** 16000 : 4G 10

2- Pneumatic connection :

The compressed air must be cleaned, de-oiled and fitted with an air dryer for a useful pressure of 5 bar. For all other information, please contact the technical staff of **LINCOLN ELECTRIC**.
Connection diameter: 16 mm



3- Stack light connection:

The stack light has three lights:

- White: power to the filter on
- Green: filter operating
- Red: variable frequency drive fault

4- Stating up the AMBICLEAN :

Set the main switch (on the side) to 1.
The white power indicator will go on.
The **AMBICLEAN** is now being supplied with power.
Press the button  of the UI screen; the fan will start.
Press the button  of the UI screen once again; the fan stops.

Emergency stop

If there is any safety problem or if an electrical fault is found. You can shut down the whole system 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.

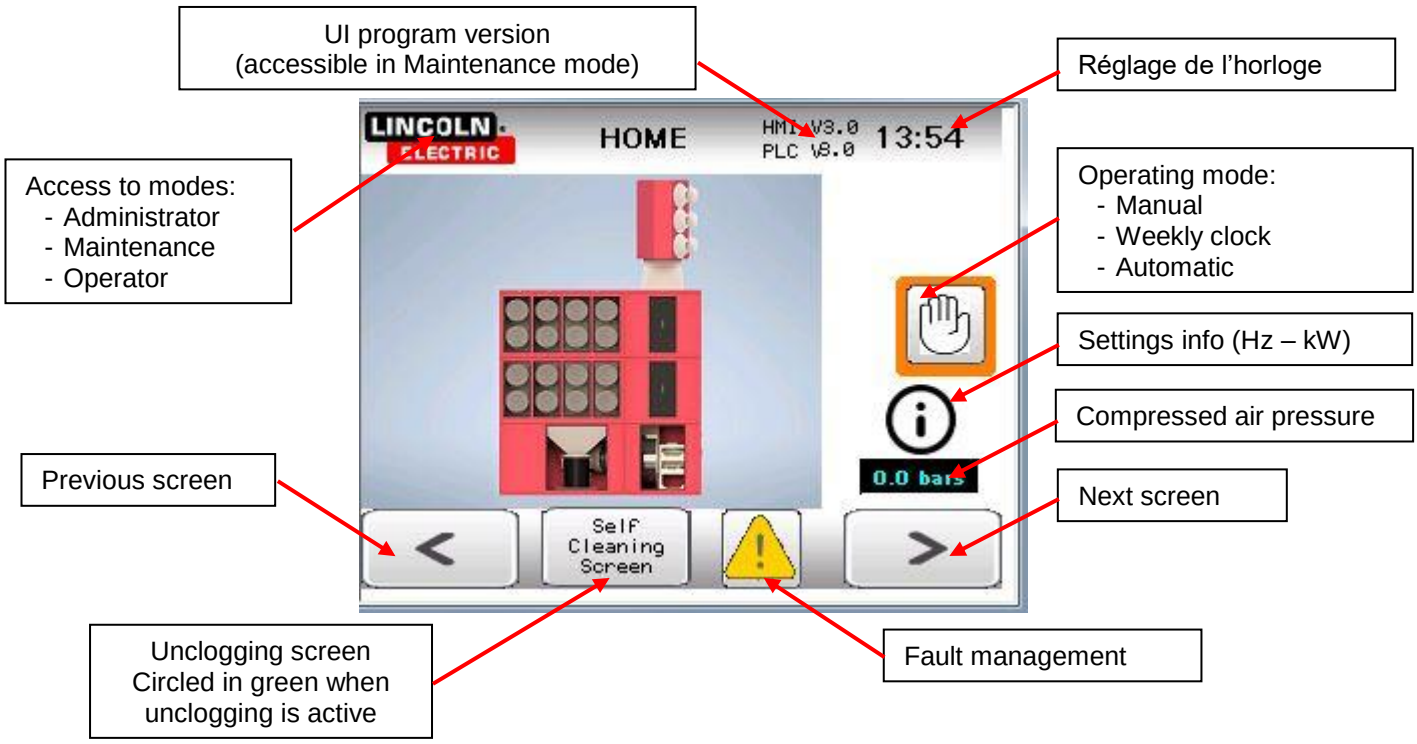
Remote control in automatic mode

Two operating modes are possible:

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

Refer to the electrical diagram for the wiring.

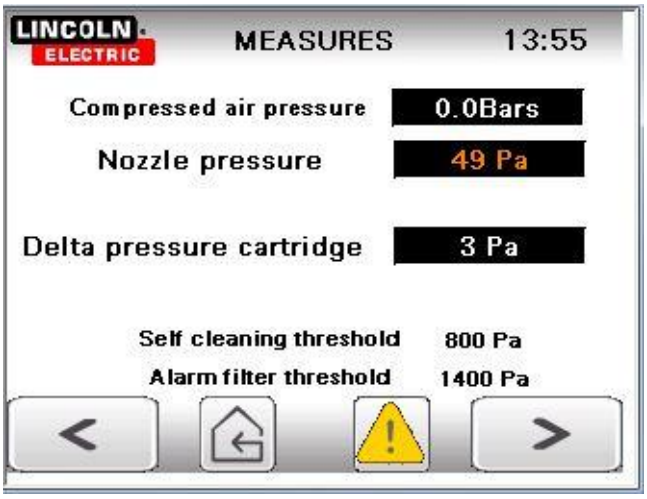
UI SCREEN CONFIGURATION



Unclogging display screen

Press the Unclogging screen key of the home screen of the UI to display this screen

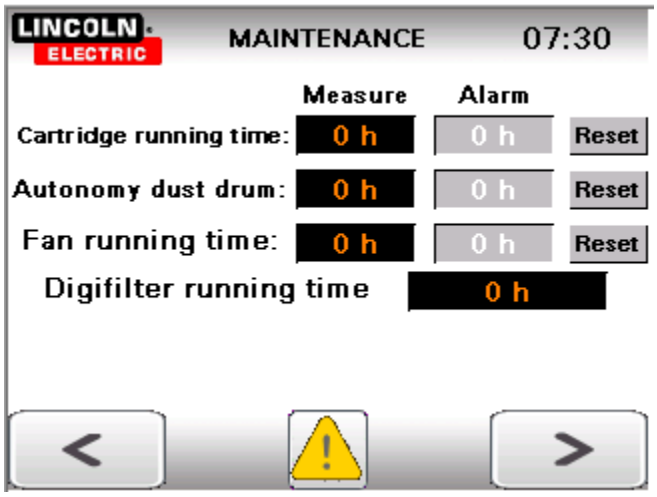
Screen for real-time measurements



Unclogging setting screen

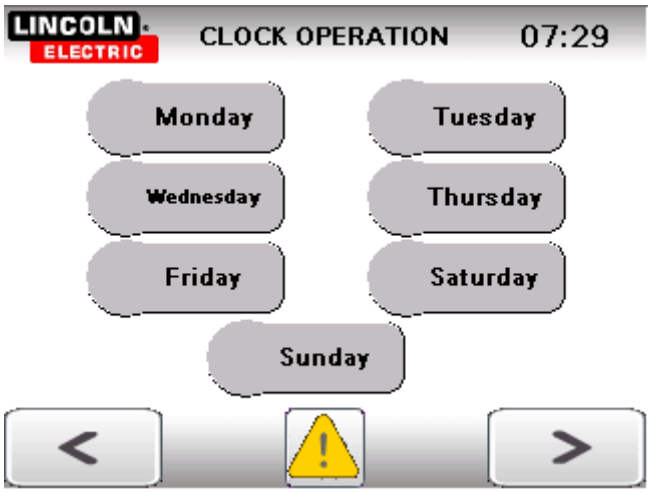
Choice of type of unclogging:
Permanent or threshold
<u>Factory values:</u>
Pulse time = 300 ms
Online pause time = 30 s
Offline pause time = 20 s
Number of online cycles = 3
Number of offline cycles = 5

Maintenance setting screen

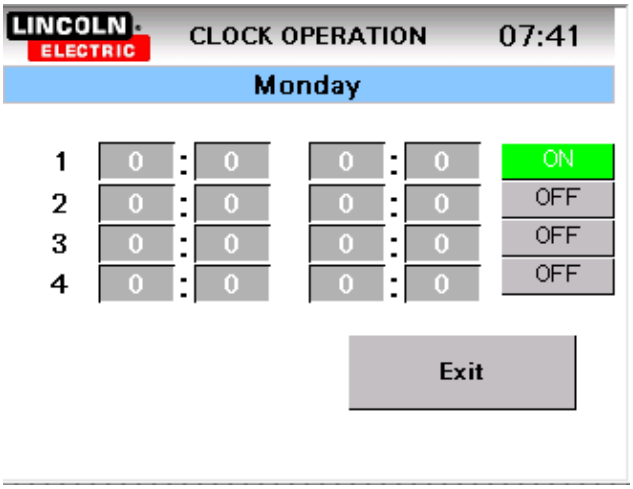


<u>Factory values:</u>
Filter operation = 1500 h
Drum use = 150 h
Fan operation = 4000 h
(inspection of absence of vibrations after every 4000 h)

Clock screen

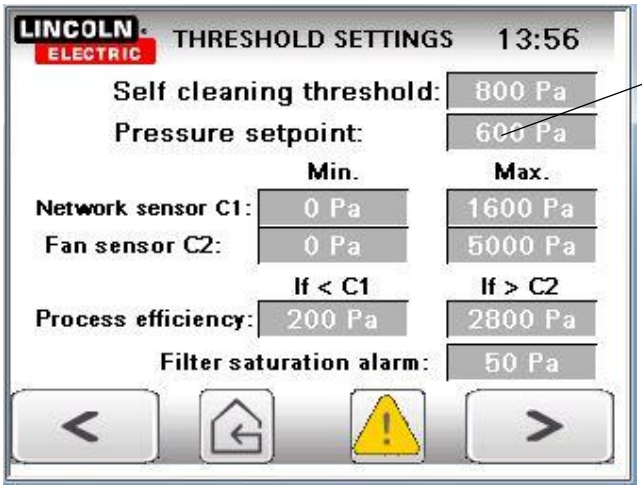


Clock setting screen



4 time slots available per day
Validation or not by selecting ON – OFF

Screen for setting thresholds



Correspondence table

Nozzle pressure	**AMBICLEAN 8000**	**AMBICLEAN 12000**	**AMBICLEAN 16000**
600 Pa	8000 m³/h	12000 m³/h	16000 m³/h
400 Pa	6000 m³/h	9000 m³/h	12000 m³/h
200 Pa	4000 m³/h	6000 m³/h	8000 m³/h

Factory values :
Unclogging threshold = 800 Pa
System sensor C1 = 0 - 1600 Pa
System sensor C2 = 0 – 5000 Pa
Process efficiency: 200 Pa – 2800 Pa
Filter saturation alarm = 1400 Pa
NB: The pressure sensors located in the electrical compartment must be calibrated based on the values displayed on the UI

Access to Systems screen

Press the Lincoln Electric log

Systems screen

After entering the codes, please press:

- Box to unlock the UI

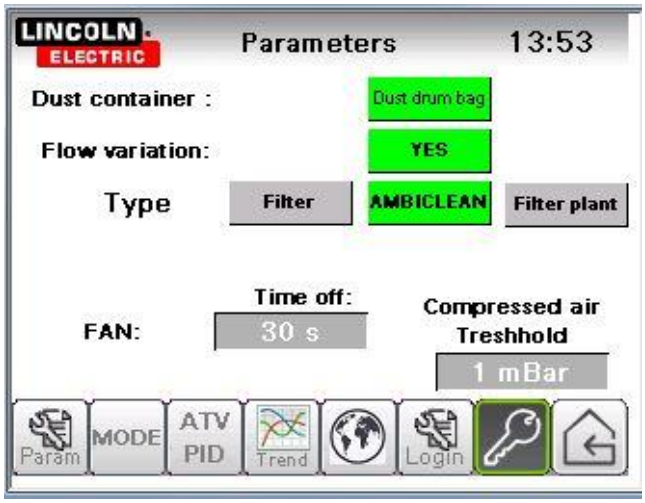
- The home box to go back to the home screen
- The middle box to go back to the previous page

NB :

The key is used to log off

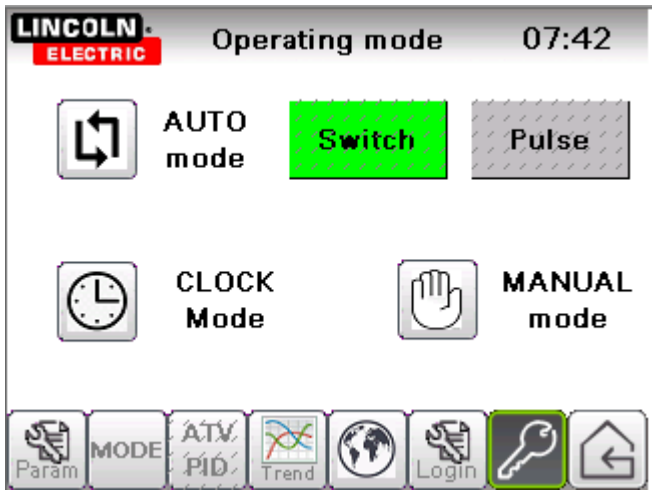
When the UI remains idle for 5 minutes, the user is automatically logged off.

Settings screen



Permitted modifications:
Fan stopping time
Compressed air limit
Factory values:
Fan stopping time = 30 s
Compressed air threshold = 3500 mbar

Operating mode screen

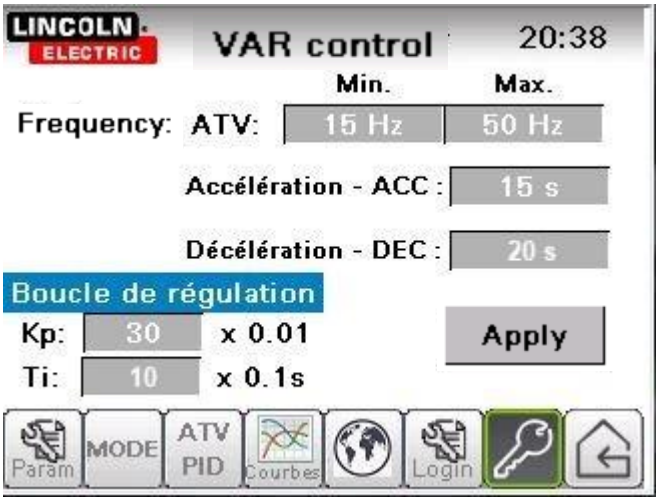


3 possible operating modes

- **Automatic by external hold or jog type contact**
- **Automatic by time slot**
- **Manual**

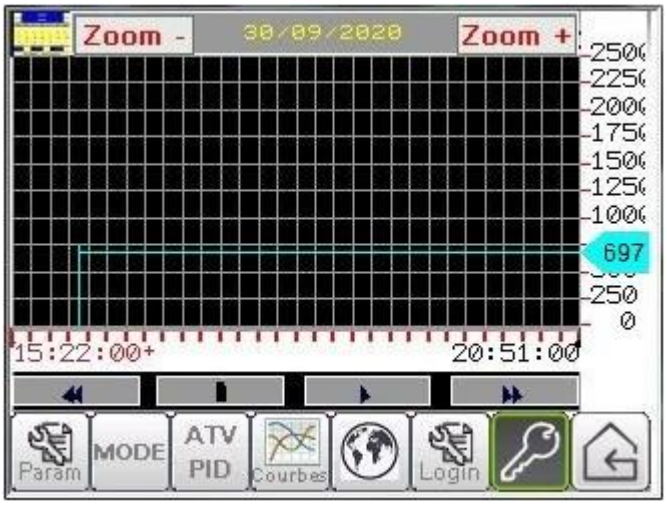
Press the logo to select the required mode

Variable drive control screen



Setting of variable drive min. and max. freq.
Min. frequency = 15 Hz
Max. frequency = 50 - 55 Hz
Setting of acceleration/declearation times
Acceleration (ACC) = 15 s
Deceleration (DEC) = 20 s

Pressure different curve screen

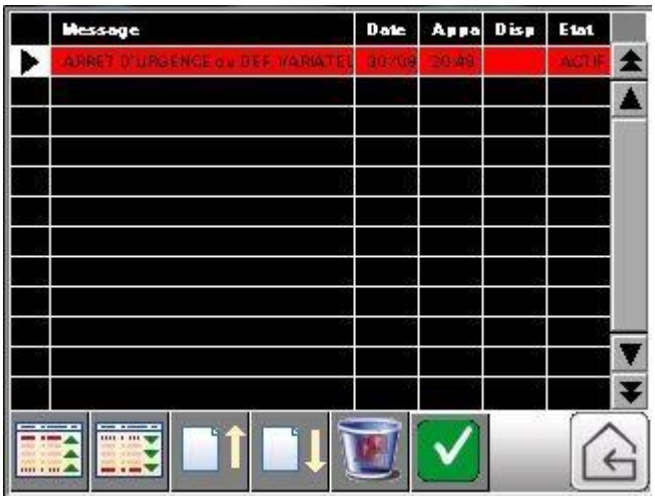


Display of pressure difference curve of filter catridges
Recording possible with USB stick
(Insert at the rear of the UI screen)

Languages screen

Choice of language based on country

Error message screen



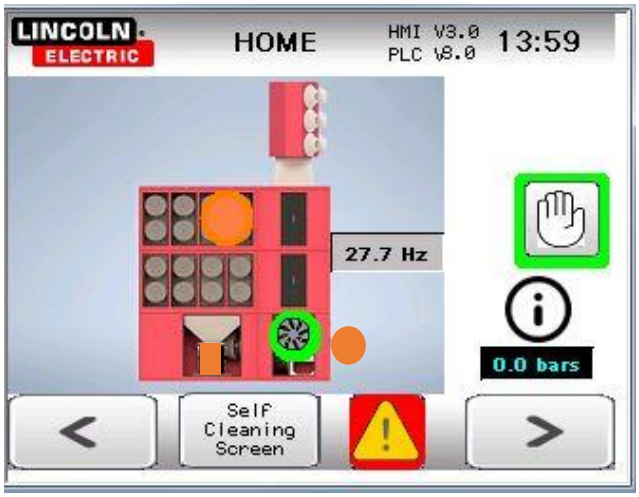
Display of operating error messages

Press the logo  **to erase the list of faults**

Recording possible with USB stick
(Insert at the rear of the UI screen)

NB: Messages become green once they are solved but are retained in the history

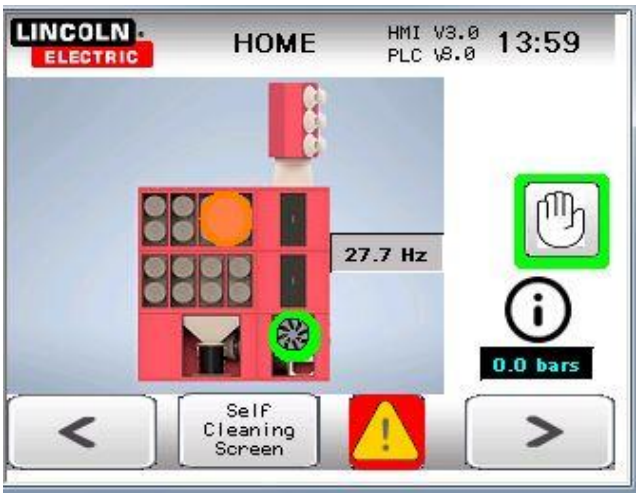
Maintenance Alarms screen



Display with an orange dot of an overrun in maintenance time:

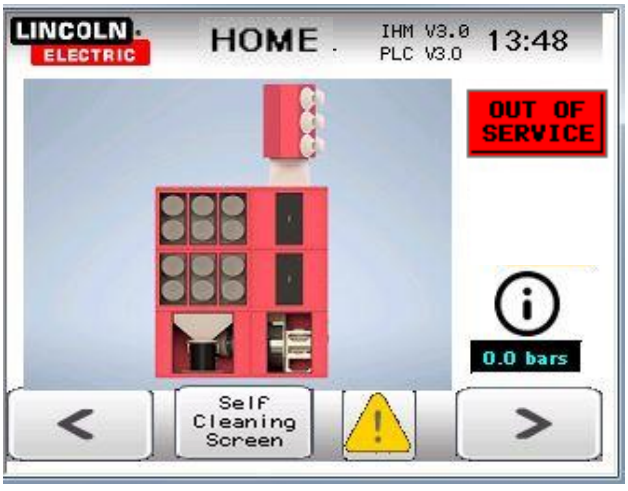
- **Filter operation**
- **Drum use**
- **Fan operation**

Cartridge Saturation Alarms screen



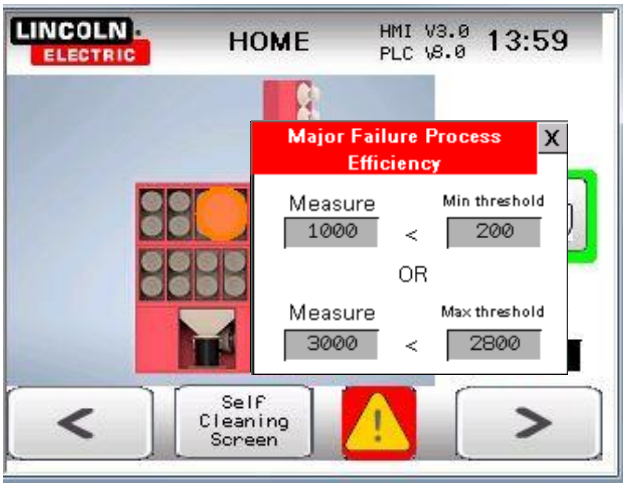
Display of filter cartridge saturation alarm values.
This screen is displayed when the orange key is pressed
The measured value exceeds the saved threshold setting

Out of Service screen



The AMBICLEAN is out of service:
<u>Possible causes:</u>
Compressed air threshold insufficient
Emergency stop engaged

Process Efficiency Alarm screen



Display of Process Efficiency alarms.
The measured value is above the set min. or max. threshold
➔ The red indicator flashes

F - MAINTENANCE

Please read the manually 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.

All routine and/or exceptional maintenance must be carried out with the machine disconnected from the supply system.

Advice for machine users: maintenance is to be carried out as described in the manual.

1. Electrical risks
2. Cutting and abrasion risks in filter area.

Mind the maintenance of the electrical cabinet. Hazards are indicated by a plate saying “HAZARDOUS VOLTAGE”.

In order to ensure the proper working of the machine, defective spare parts must be replaced with original spare parts from **LINCOLN ELECTRIC**.

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.

FAN

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

Tableau 1 – catégorie d'application du ventilateur

Application	Limites de puissances kW	Catégorie d'application de ventilateur
Habitation	≤ 0.15	BV-1
	> 0.15	BV-2
CVC et Agriculture	≤ 3.7	BV-2
	> 3.7	BV-3
Procédé industriel et production d'énergie	≤ 300	BV-3
	> 300	Voir ISO 10816-3
Transport et Maritime	≤ 15	BV-3
	> 15	BV-4
Circulation / tunnel	≤ 75	BV-3
	> 75	BV-4
Procédé pétrochimique	≤ 37	BV-3
	> 37	BV-4
Fabrication de puces d'ordinateur	Sans	BV-5

Tableau 2 - limites de vibrations

ETAT	Catégorie d'application	Montage rigide mm/s (r.m.s.)	Montage flexible mm/s (r.m.s.)
DEMARRAGE	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
ALARME	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
ARRET	BV-1	Suivant historique	Suivant historique
	BV-2	Suivant historique	Suivant historique
	BV-3	9	12.5
	BV-4	7.1	11.2
	BV-5	5.6	7.1

NB : **LINCOLN ELECTRIC** markets category BV3 and BV4 fans.

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

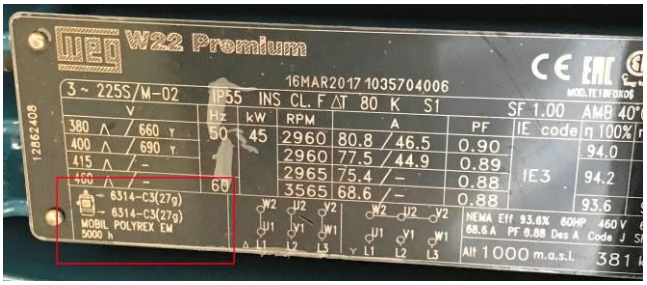
Check that dust is not being deposited in large quantities on:
- The motor ventilation blades.
- The fixed and rotating parts of the fan.

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 at the bearing when it is lubricated correctly; the condition of the bearings must be inspected.

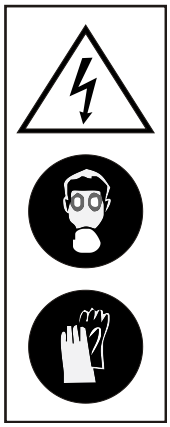
Damaged bearings must be replaced as soon as possible to prevent more significant damage to the motor and driven parts.
When a bearing needs to be replaced, **the other bearing must also be replaced.**
Seals must always be changed when bearings are changed.
The floating bearing must allow the expansion of the rotor shaft (make sure to identify it during disassembly).

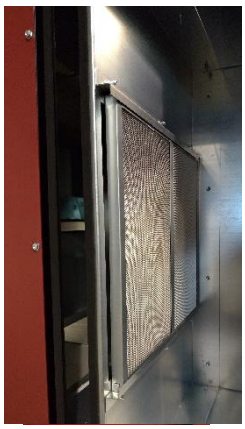
Bearing housing overhaul

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.).

MAINTENANCE OF FILTERING ELEMENTS

PRE-FILTERS



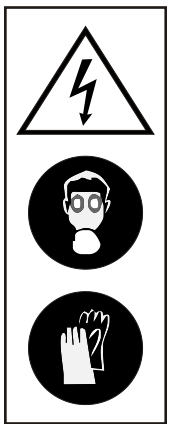


From time to time (every week at the start) as a preventive measure or whenever extraction no longer seems adequate:

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 air inlet on the front.

FILTER CARTRIDGE REPLACEMENT



NB: To replace the filter cartridges, always use protective goggles and a respiratory mask 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 disconnector 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

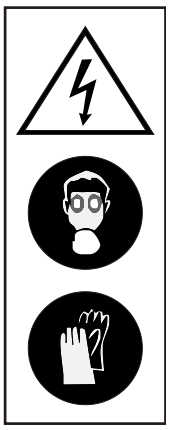
4: Put the clogged cartridge in the packaging of the new cartridge

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.

PROCEDURE FOR EMPTYING THE DUST DRUM



NB: To empty the drums, use protective goggles and a respiratory mask 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 disconnector or via the fuses.

1 : The drums must be emptied regularly

2: Switch off the power to the fan.

3: Open the dust drum compartment

4: Take off the holding latches (to do so, press the unlocking mechanisms of the latches on the HD units)

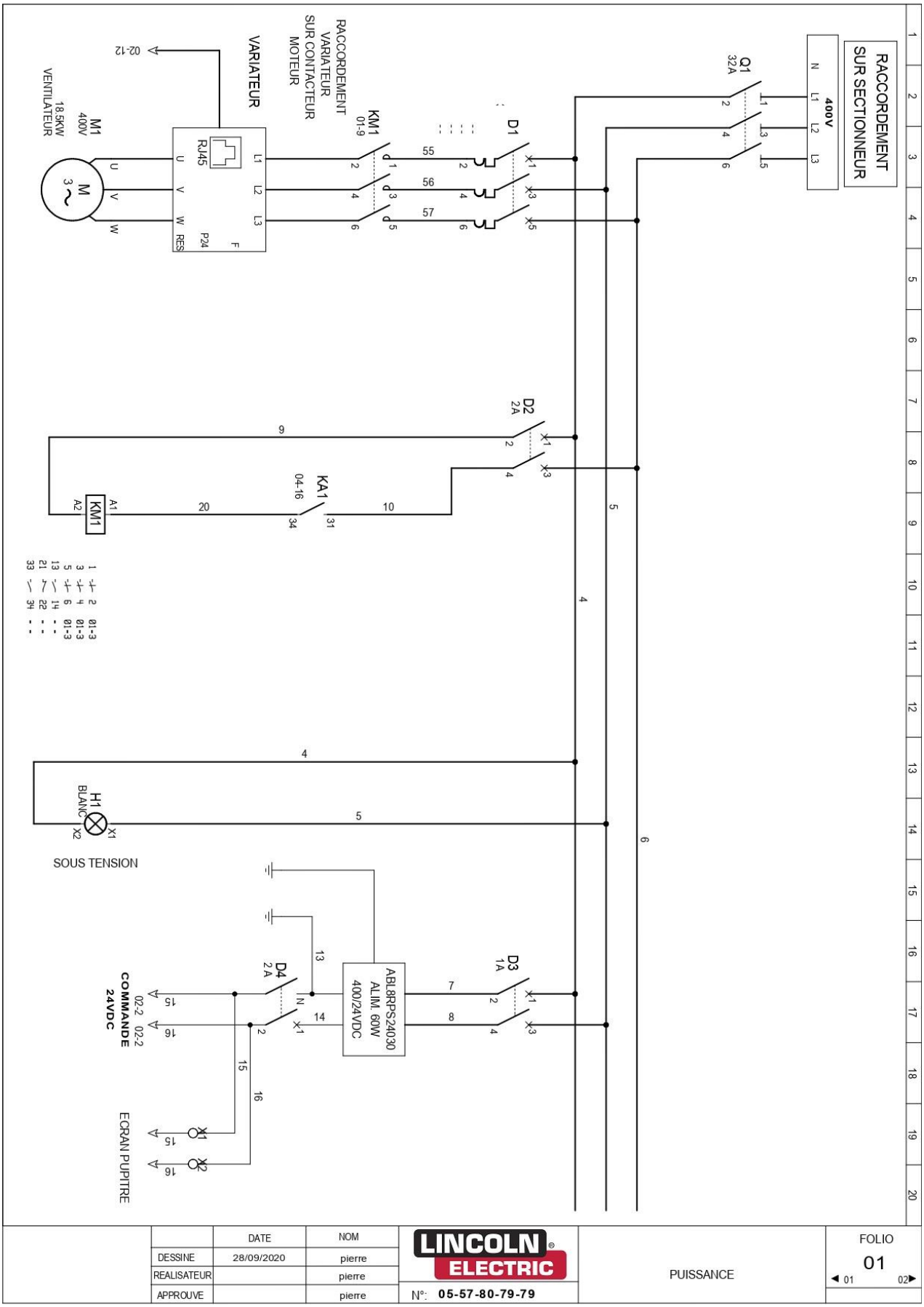
5: Remove the drum

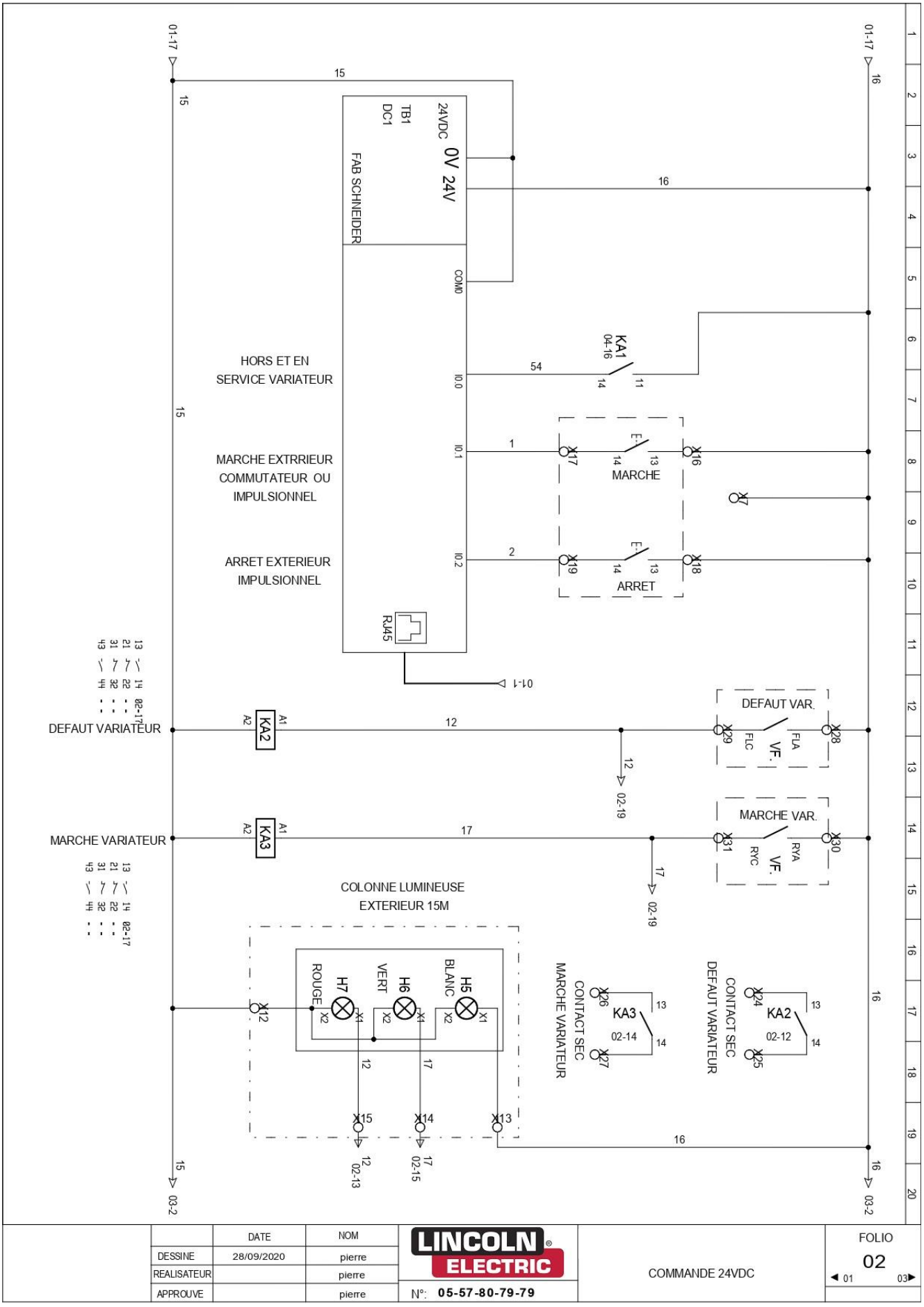
6: Replace the liner, put the drum in its place and put the fan back into operation.

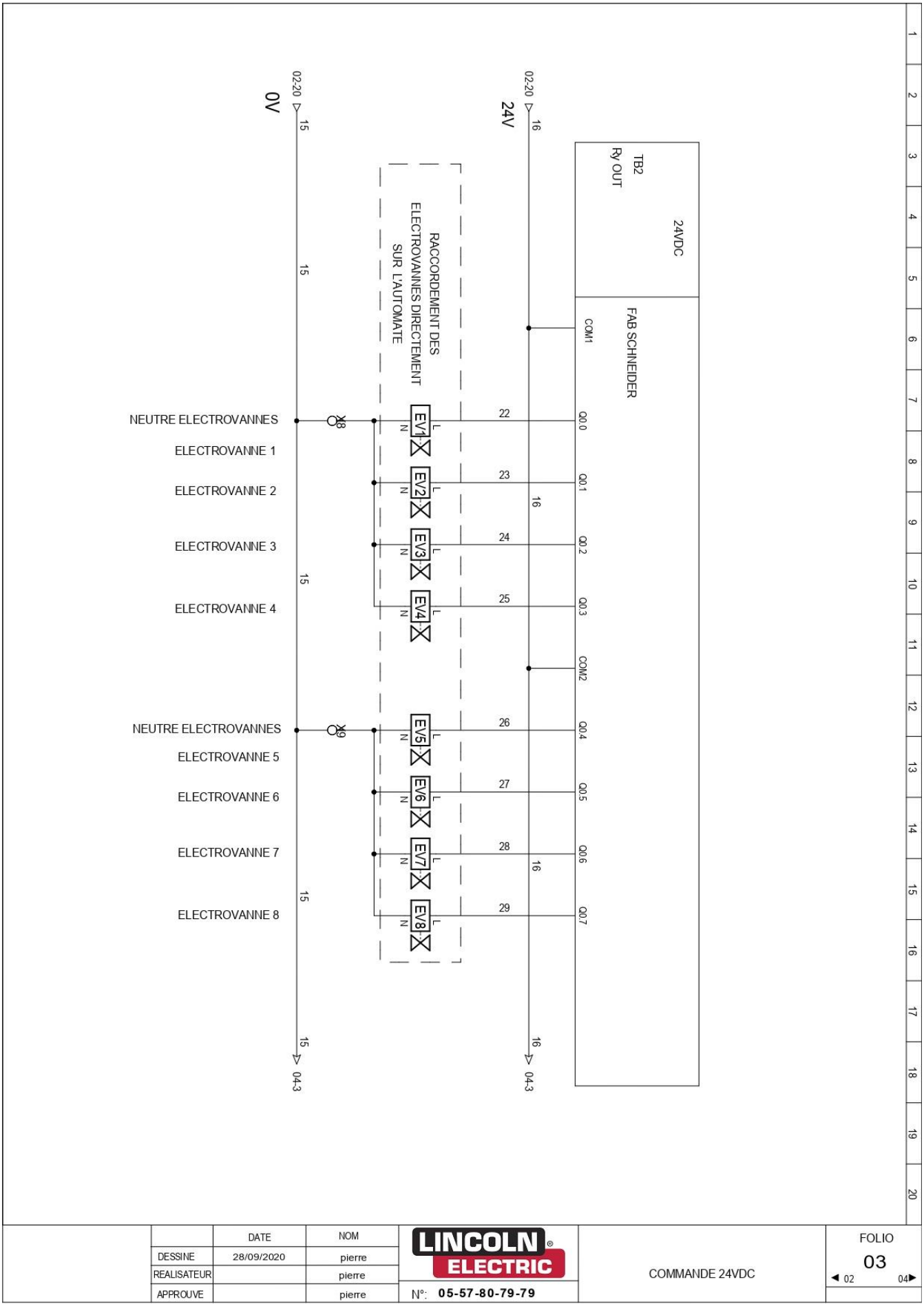
INSPECTION OF FILTRATION ELEMENTS

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

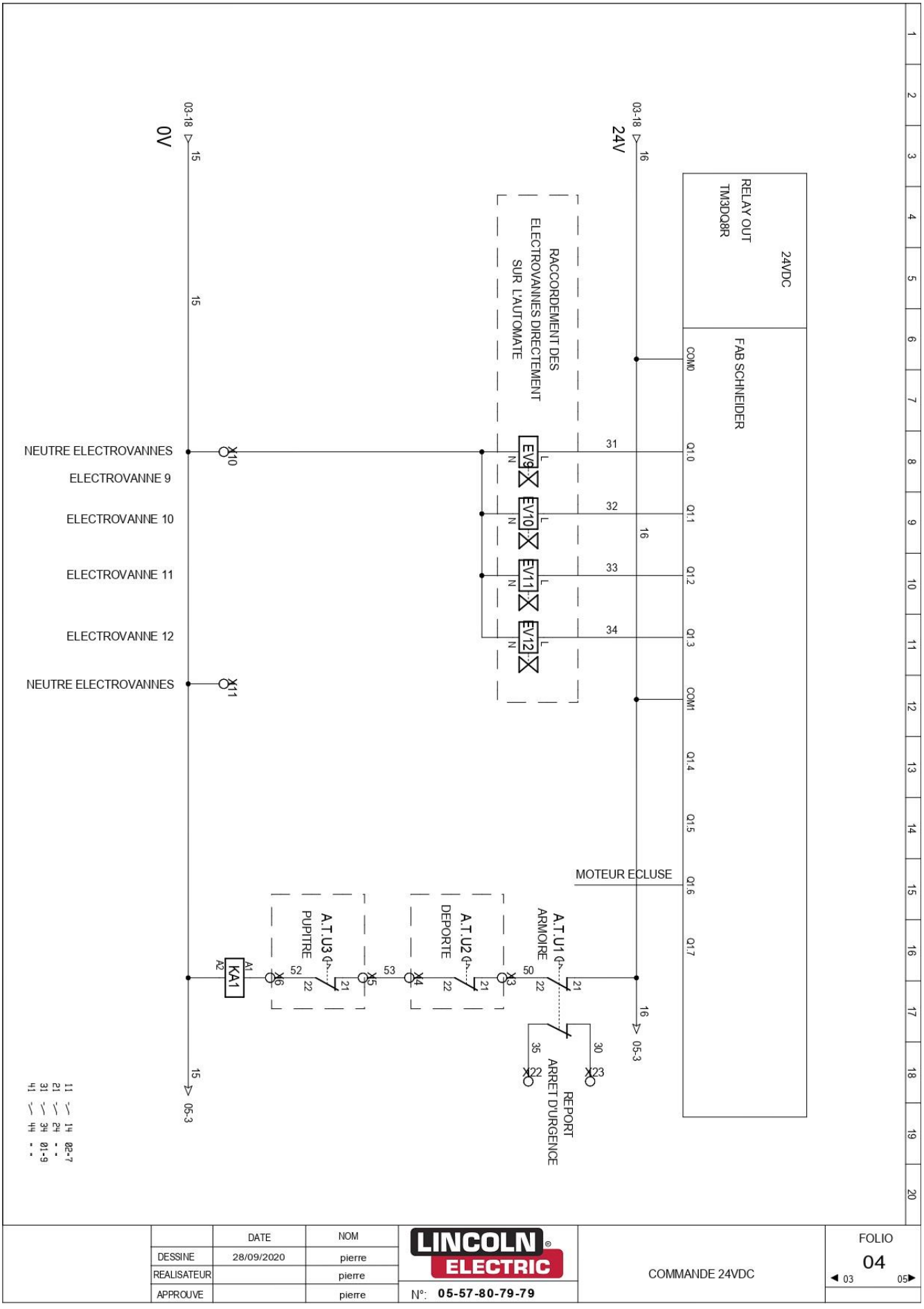
ELECTRICAL DIAGRAMS - WITH VARIABLE DRIVE

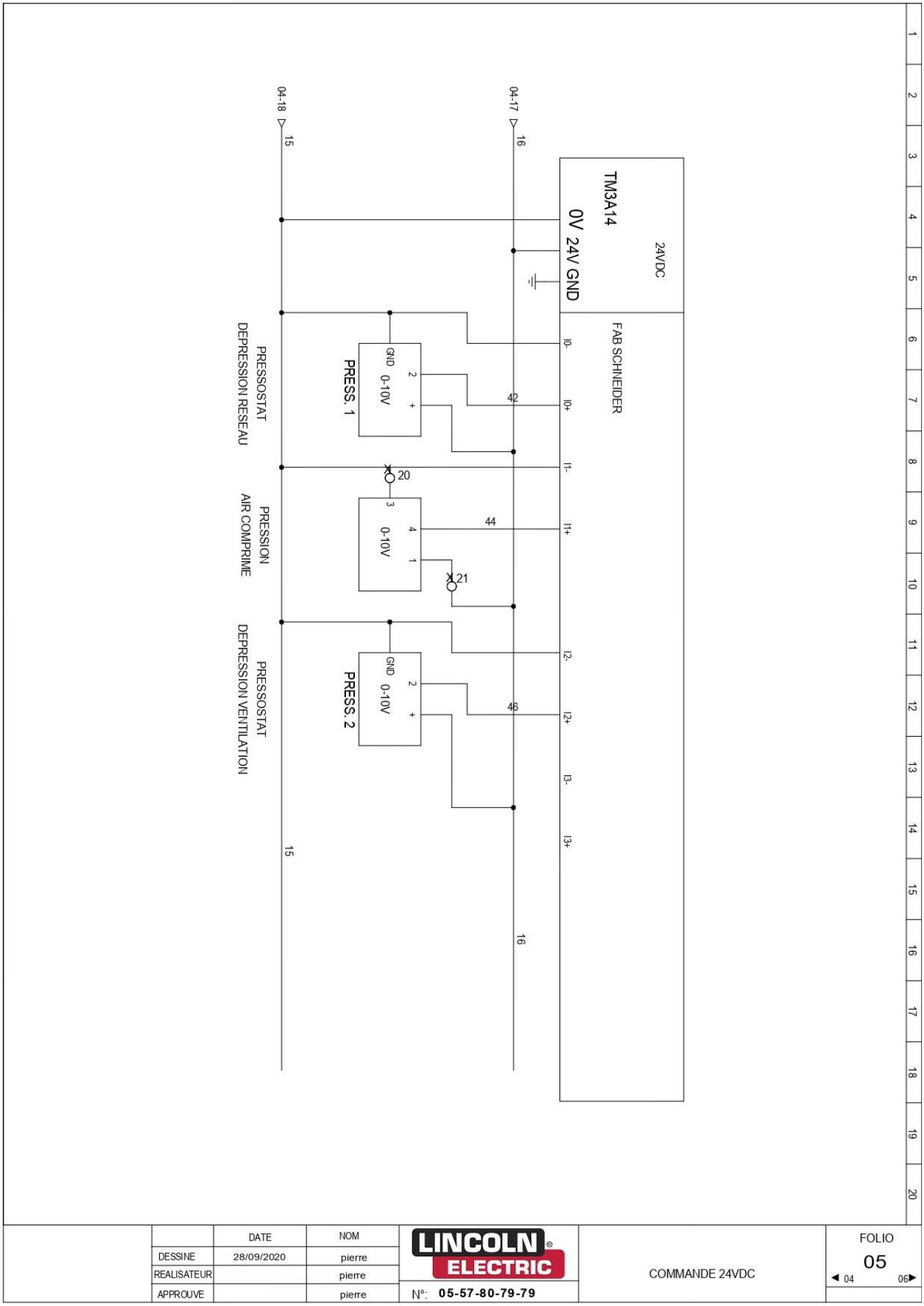



01-17
15
16
24VDC
0V 24V
TB1
DC1
FAB SCHNEIDER
COM0
HORS ET EN
SERVICE VARIATEUR
I0.0
54
KA1
04-16
MARCHE EXTRRIEUR
COMMUTATEUR OU
IMPULSIONNEL
I0.1
1
MARCHE
ARRET EXTERIEUR
IMPULSIONNEL
I0.2
2
ARRET
RJ45
01-1
DEFAUT VARIATEUR
KA2
12
02-19
DEFAUT VAR.
VF.
MARCHE VARIATEUR
KA3
17
MARCHE VAR.
COLONNE LUMINEUSE
EXTERIEUR 15M
ROUGE
VERT
BLANC
H7
H6
H5
CONTACT SEC
MARCHE VARIATEUR
CONTACT SEC
DEFAUT VARIATEUR
02-14
02-12
03-2
DESSINE
REALISATEUR
APPROUVE
DATE
28/09/2020
NOM
pierre
N°: 05-57-80-79-79
COMMANDE 24VDC
FOLIO
02

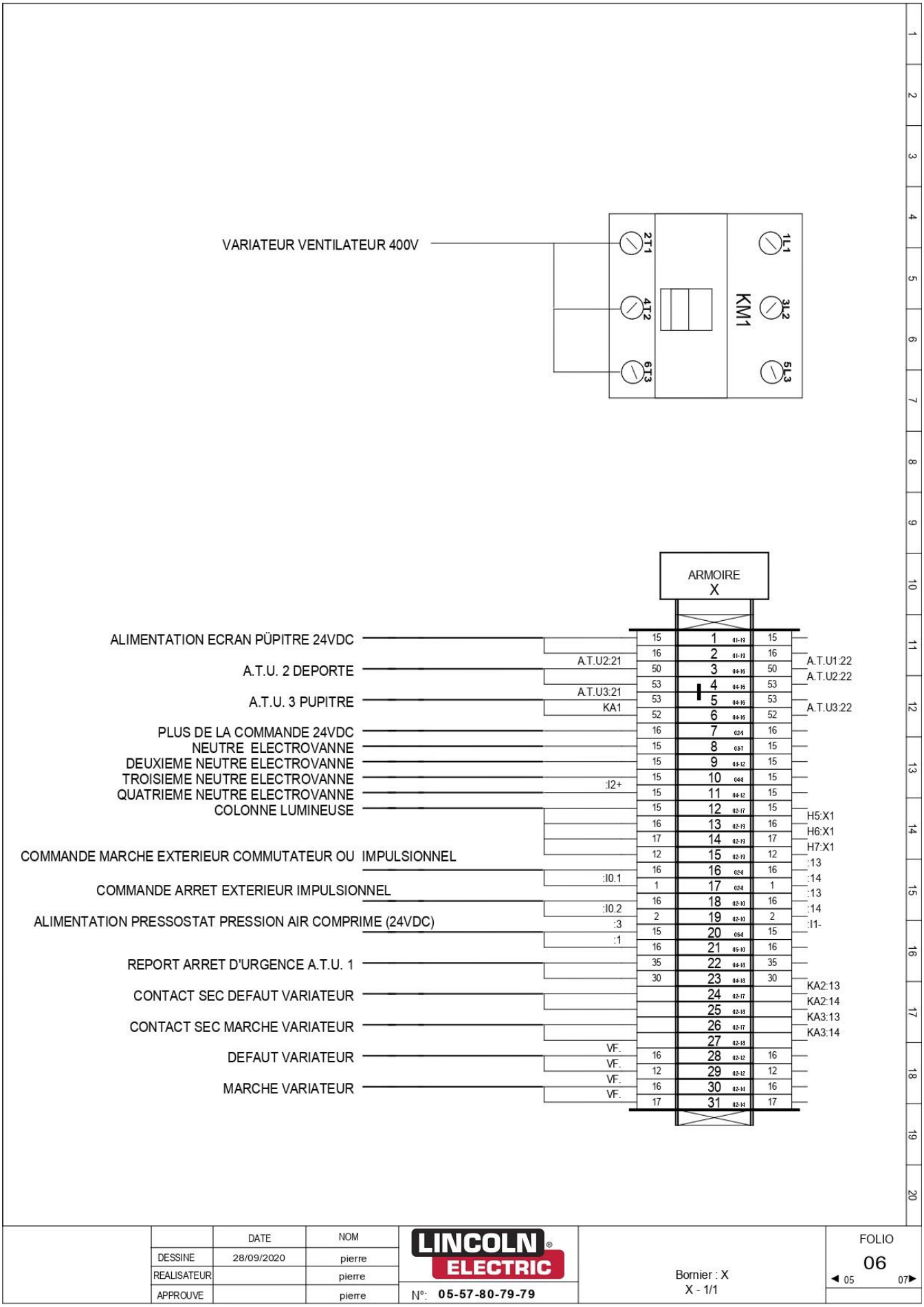


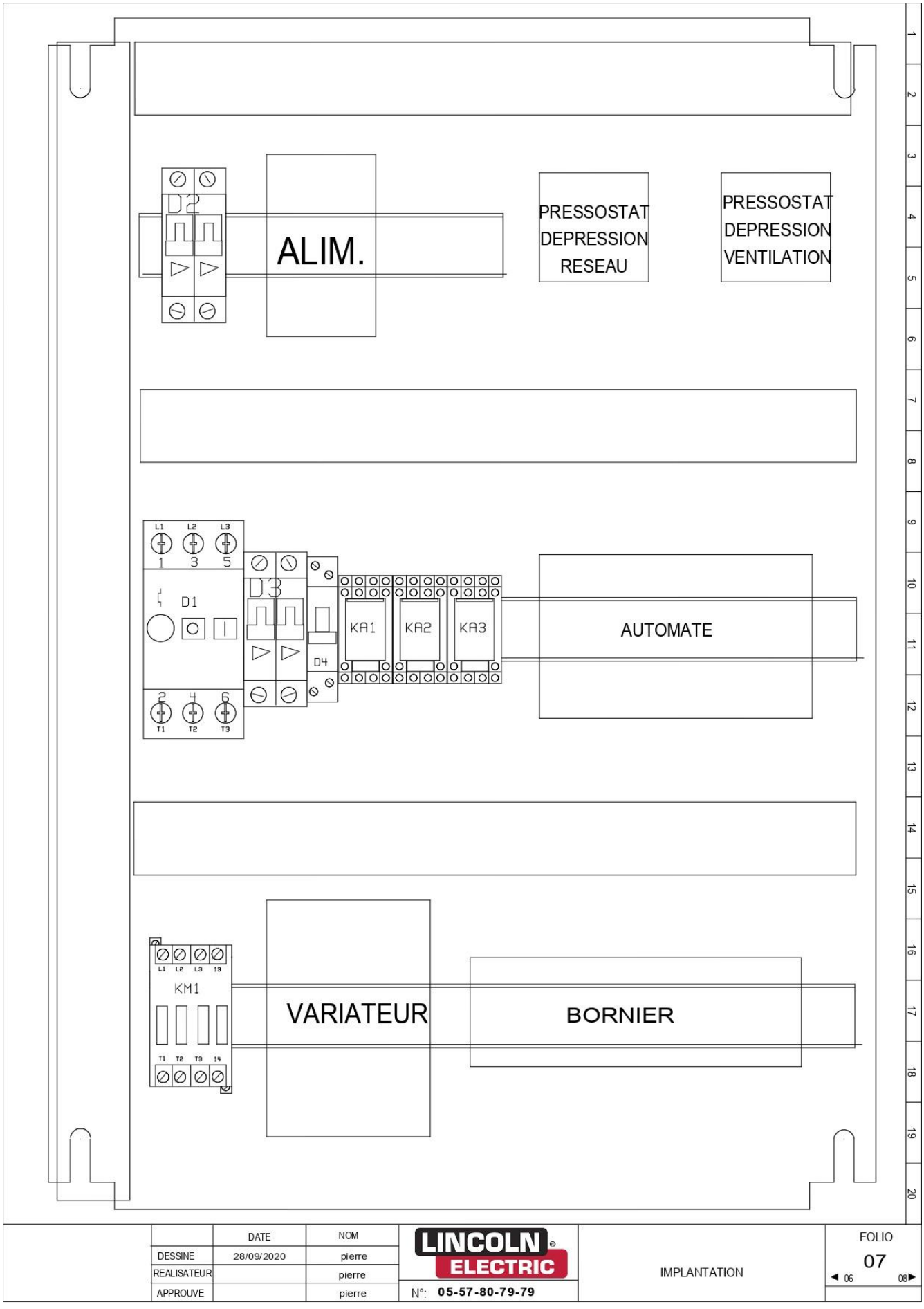
	DATE	NOM			
DESSINE	28/09/2020	pierre	LINCOLN ELECTRIC	COMMANDE 24VDC	FOLIO 03
REALISATEUR		pierre			◄ 02 04►
APPROUVE		pierre	N°: 05-57-80-79-79		


24VDC
RELAY OUT
TM3DQ8R
FAB SCHNEIDER
COM0
Q1.0
Q1.1
Q1.2
Q1.3
COM1
Q1.4
Q1.5
Q1.6
Q1.7
RACCORDEMENT DES
ELECTROVANNES DIRECTEMENT
SUR L'AUTOMATE
03-18
24V
0V
NEUTRE ELECTROVANNES
ELECTROVANNE 9
ELECTROVANNE 10
ELECTROVANNE 11
ELECTROVANNE 12
NEUTRE ELECTROVANNES
EV9
EV10
EV11
EV12
MOTEUR ECLUSE
A.T.U1
ARMOIRE
A.T.U2
DEPORTE
A.T.U3
PUPITRE
KA1
REPORT
ARRET D'URGENCE
05-3
02-7
01-9
LINCOLN ELECTRIC
N°: 05-57-80-79-79
COMMANDE 24VDC
FOLIO
04
DESSINE
REALISATEUR
APPROUVE
DATE
28/09/2020
NOM
pierre



	DATE	NOM			
DESSINE	28/09/2020	pierre	LINCOLN ELECTRIC	COMMANDE 24VDC	FOLIO 05
REALISATEUR		pierre			◄ 04 06►
APPROUVE		pierre	N°: 05-57-80-79-79		

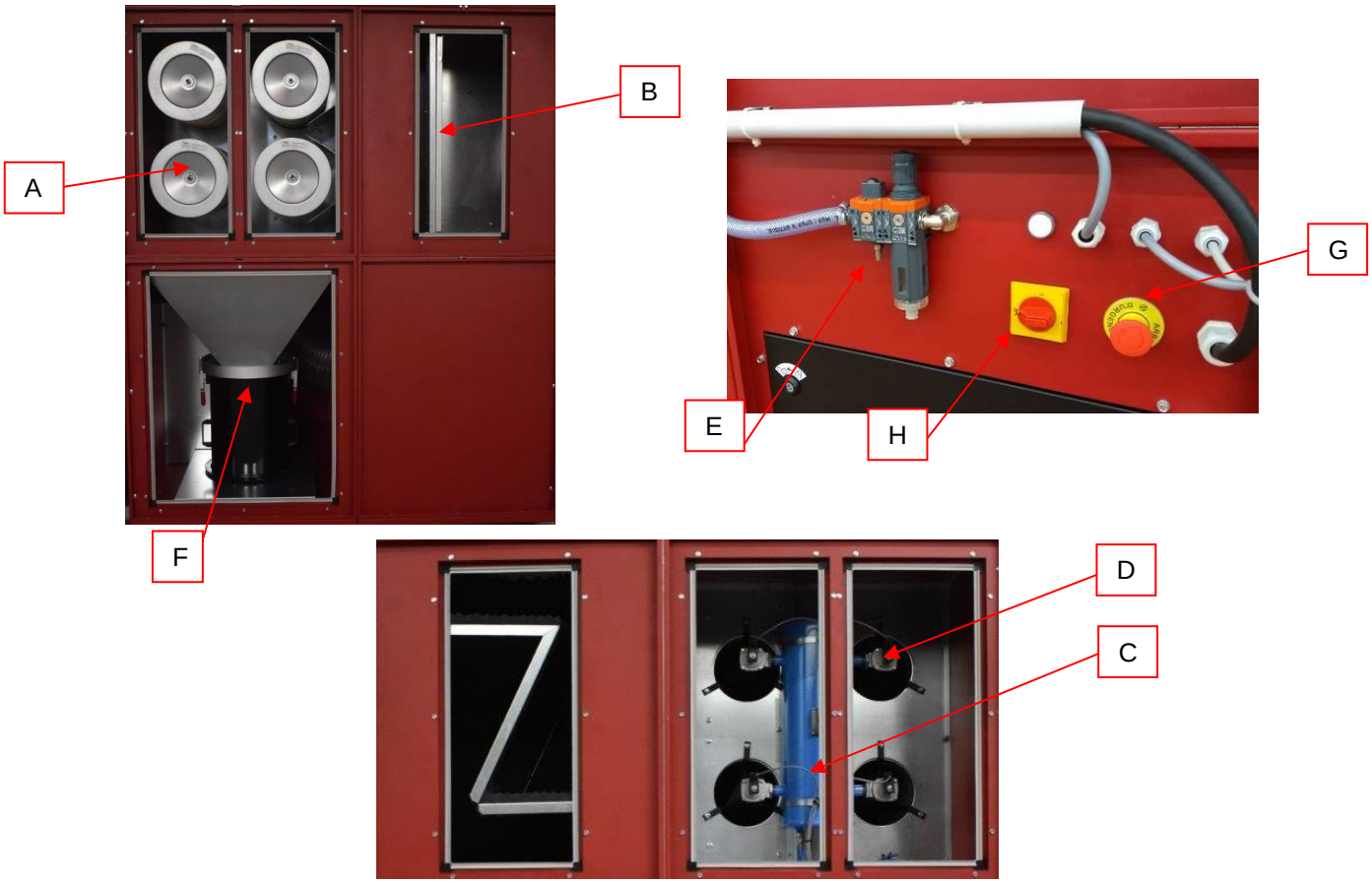

VARIATEUR VENTILATEUR 400V
2T1
4T2
6T3
1L1
3L2
5L3
KM1
ARMOIRE
X
ALIMENTATION ECRAN PÜPITRE 24VDC
A.T.U. 2 DEPORTE
A.T.U. 3 PUPITRE
PLUS DE LA COMMANDE 24VDC
NEUTRE ELECTROVANNE
DEUXIEME NEUTRE ELECTROVANNE
TROISIEME NEUTRE ELECTROVANNE
QUATRIEME NEUTRE ELECTROVANNE
COLONNE LUMINEUSE
COMMANDE MARCHE EXTERIEUR COMMUTATEUR OU IMPULSIONNEL
COMMANDE ARRET EXTERIEUR IMPULSIONNEL
ALIMENTATION PRESSOSTAT PRESSION AIR COMPRIME (24VDC)
REPORT ARRET D'URGENCE A.T.U. 1
CONTACT SEC DEFAUT VARIATEUR
CONTACT SEC MARCHE VARIATEUR
DEFAUT VARIATEUR
MARCHE VARIATEUR
A.T.U2:21
A.T.U3:21
KA1
:I2+
:I0.1
:I0.2
:3
:1
VF.
A.T.U1:22
A.T.U2:22
A.T.U3:22
H5:X1
H6:X1
H7:X1
:13
:14
:13
:14
:I1-
KA2:13
KA2:14
KA3:13
KA3:14
DESSINE
REALISATEUR
APPROUVE
DATE
28/09/2020
NOM
pierre
pierre
pierre
LINCOLN ELECTRIC
N°: 05-57-80-79-79
Bornier : X
X - 1/1
FOLIO
06
◄ 05
07►


ALIM.
PRESSOSTAT DEPRESSION RESEAU
PRESSOSTAT DEPRESSION VENTILATION
D1
D2
D3
D4
KA1
KA2
KA3
AUTOMATE
KM1
VARIATEUR
BORNIER
DESSINE 28/09/2020 pierre
REALISATEUR pierre
APPROUVE pierre
N°: 05-57-80-79-79
IMPLANTATION
FOLIO 07
◄ 06 08►

LIST OF PARTS OF THE ELECTRICAL CABINET

REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
ALIM	400/24 VDC 60 W power supply	EM61000469	1
Q1	32 A disconnector	Please enquire	1
D1	13/18 A motor circuit breaker - **AMBICLEAN 8000**	Please enquire	1
D1	30/40 A motor circuit breaker - **AMBICLEAN 12000**	Please enquire	1
D1	30/40 A motor circuit breaker - **AMBICLEAN 16000**	Please enquire	1
D2	2 A two-pole circuit breaker	Please enquire	1
D3	1 A two-pole circuit breaker	Please enquire	1
D4	Phase + Neutral 2A circuit breaker	Please enquire	1
KM1	7.5 kW – 400V contactor - **AMBICLEAN 8000**	Please enquire	1
KM1	15 kW – 400V contactor - **AMBICLEAN 12000**	Please enquire	1
KM1	18.5 kW – 400V contactor - **AMBICLEAN 16000**	Please enquire	1
H1	White 380 V indicator	Please enquire	1
C1 / C2	System and fan pressure switch	W000276149	2
AU	Emergency stop	Please enquire	1
VF	Variable frequency drive 7,5KW - **AMBICLEAN 8000**	W000381522	1
VF	Variable frequency drive 15KW - **AMBICLEAN 12000**	W000381524	1
VF	Variable frequency drive 18,5KW - **AMBICLEAN 16000**	W000381525	1
IHM	UI monitor	EM61000471	1
Automate	TM221ME16R controller	EM61000472	1
Automate	TM3 module – 8 TM3DQ8R relay outputs	EM61000473	1
Automate	TM3 module – 4 analogue inputs	EM61000474	1

LOCATION OF SPARE PARTS



			QUANTITES		
REFERENCE	DESCRIPTION	PART NUMBER	8000	12000	16000
A	FILTER CARTRIDGE WITH 15M² PTFE MEMBRANE	EM61000155	8	12	16
	APPLICATION FOR OILY FUMES FILTER CARTRIDGE WITH PTFE IMPREGNATION	EM61000156	8	12	16
B	METAL PRE-FILTER (800 X 295 X 24) MM	W000379658	4	4	6
C	4 SV AIR TANK KIT	W000342244	2	2	4
	TANK BRACKET – 4X SOLENOID VALVES	EM61000467	2	2	4
	2 SV AIR TANK KIT	W000342821	0	2	0
	TANK BRACKET – 2X SOLENOID VALVES	EM61000466	0	2	0
D	6.0D SOLENOID VALVE	S94002086	8	12	16
E	PRESSURE REDUCER FILTER	EM61000470	1	1	1
F	DUST DRUM	PLEASE ENQUIRE	1	1	1
G	EMERGENCY STOP	PLEASE ENQUIRE	1	1	1
H	32A STARTING UP DISCONNECTOR	PLEASE ENQUIRE	1	1	1
	CRYSTAL TUBE Ø10 – L10M	EM61000493	1	1	1
	PU COMPRESSED AIR TUBE – L10M	EM61000494	1	1	1

PERSONAL NOTES

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