



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.

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AMBICLEAN

AMBICLEAN 5000 FILTER

TYPE : W000373567

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	Part number
AMBICLEAN 5000	W000373567

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
- Air Treatment Products Manager, authorised to compile the technical manufacturing document.
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CERGY, on 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 user of the machine 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.



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 installation by locking it out:

Accidental connection of the cable of a fixed installation 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 installations 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 a duty point based on extraction speed (speed of air in the piping) and head loss.

In accordance with the regulations of CARSAT and INRS, the installation 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 roadsPiping 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 (<u>not recommended</u>), 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) of gaseous pollutants relating to the specific pollution 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







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

DESCRIPTION OF THE EQUIPMENT

The **AMBICLEAN 5000** is designed for small workshops that generate a small quantity of dust resulting from welding operations.

The fan has variable frequency drive and operates based on the actual need for extraction, thus enabling considerable energy savings.



- Nominal flow rate: 5000 m³/h with 800 Pa vacuum.
- Structure made in aluminium sections clad with painted galvanised steel plates and 25mm soundproofing foam.
- Air inlets on the left and right with metal pre-filters and finned grilles, central filtered air outlet with four turning nozzles
- 1 pressure switch for filter saturation control. VCAAT 315 K fan, pulley and belt transmission, 3 kW IE2 motor - 4 poles, 400 V 50 Hz IP55 Class F.
- Variable frequency drive
- Control cabinet (located 5m away)
 - Padlockable disconnector
 - Auto/Manual mode selection
 - On/Off luminous pushbuttons
 - Programming clock
 - Filter saturation alarm
- Flow regulation by variable frequency drive and electronic pressure sensor.
- Painted steel wall bracket supplied.

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

Benefits:

- High filtration efficiency thanks to filter cassettes.
- Low noise.
- Low maintenance
- Fan regulation to allow energy savings
- Simple installation

Delivery:

The filter is delivered in a single block including the fan, the filtration components and dust recovery.



COMPOSITION OF THE FILTRATION SYSTEM

Filtration components:

- Metal pre-filters
- Filter cassettes
- San compartment
- Blowing nozzles



Electrical cabinet (front):



- Main disconnecting switch
- Power on indicator
- Cartridge saturation alarm indicator
- Cartridge saturation alarm buzzer
- •Automatic on/off clock
- G Fan off pushbutton
- Fan on pushbutton
- Manual/auto switch
- Emergency stop button

Electrical cabinet (interior components):

- Motor supply protection
- O Terminal block
- Transformers
- Oircuit breaker





OPERATING PRINCIPLE

This system sets the fume cloud into motion, catches it, filters it and recycles it into the workshop. Thus, the fumes do not have the time to cool and drop, making the working environment clean.



O	Operating principle of the unclogging filter				
1	Polluted air is distributed in the filter after passing through the pre-filter compartment.				
2	Filter cassettes purify the air up to 99.9% and more.				
3	The filtered air is expelled through the blowing nozzles on the front of the Ambiclean				

Le coffret de commande est équipé d'un variateur de fréquence qui permet de maintenir un débit constant grace à la mesure continue de pression dynamique du ventilateur de l' **AMBICLEAN**.

<u>NB</u>: The **AMBICLEAN** does not release the operator from using personal protection, because even if the atmosphere in the workshop is healthy, the worker is not protected during the welding process. We recommend either the use of fume extraction torches or the use of ventilated masks of the Zephyr type, independent masks with a supply of filtered and controlled area.

Saturation alarm:

The **AMBICLEAN ESSENTIAL 5000** are fitted with an alarm system that controls the saturation status of the filter cassettes. The pressure difference through the cassettes is continuously monitored. When the difference exceeds 500 Pa, a red indicator goes on and a buzzer sounds.

In such a case, the filter continues to operate but in degraded mode, and the filter cassettes must absolutely be changed.



TECHNICAL DATA

Fan:

- Type: Fan VCAAT 315– 3kW
- Voltage : 400V 50Hz IP55 CI F
- Frequency : 50Hz
- Rotation speed : 1250rpm
- Flow rate: 5000 m³/h at 800 PA





Belt drive system:





D - ASSEMBLY AND INSTALLATION

FILTER INSTALLATION

Assembly:

- The AMBICLEAN ESSENTIAL 5000 is a monobloc filter.
- Its four nozzles can be turned to optimise air flow.
- It is to be fixed along a wall, on a platform, on a stand, at a height of 4 to 5 m depending on the height of the room.
- For starting up, you must fasten the control cabinet at breast height and connect it to your electrical system 400 V - 3 Ph - 50 Hz.



IMPORTANT: Before starting to assemble elements at a height, make sure you comply with all the safety regulations applicable on your site. (Use of a safety harness at heights, marking of zones etc.)

DIMENSIONS AND LAYOUT

Dimensions of right inlet filter:



It is to be fixed along a wall, on a platform, on a stand, at a height of 4 to 5 m depending on the height of the room. Then adjust the direction of the nozzles so as to have an air jet distributed evenly throughout the workshop and allow a return flow to the **AMBICLEAN**.



STARTING UP PROCEDURE

In order to guarantee easy and complete starting up, here is the order of the different key stages that are required:

- 1. Electrical connections :
 - Power supply.
 - Remote cabinet.
- 2. Installation of system control
 - Setup of the variable frequency drive and pressure switch :
 - Operating with or without regulation.
- 3. Use of the different functions of the electrical cabinet

CONNECTIONS TO THE SYSTEM

Mains connection

Primary power supply of filter – 400V. – 50 Hz – 3ph.



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

Primary cable section requirement:

Motor power	50HZ SYSTEM VOLTAGE 400V 3PH
3 kW	4 x 1,5
4 kW	4 x 1,5
5,5 kW	4 x 1,5
7,5 kW	4 x 2,5
9 kW	4 x 2,5
11 kW	4 x 4
15 kW	4 x 6
18,5 kW	4 x 10
22 kW	4x10
30 kW	4 x 16

Part numbers of electrical cables

Cable section	Part no
3x1.5 mm ²	W000010098
3x2.5 mm ²	W000010099
4x2.5 mm ²	W000010100
4x4 mm ²	W000010101
4x6 mm ²	W000010102
4x10 mm ²	W000010103
4x16 mm ²	W000010104
4x25 mm ²	W000010105
4x35 mm ²	W000010106



STARTING UP THE FILTER

Electrical cabinet



Starting up

Set the main switch ● to position 1 (the electrical cabinet is supplied with power).
Set the switch ④ to Buttons\0/Clock depending on the configuration in which you want to work.
Button: Starting up and stopping the fan using the buttons (⑤ and ⑦) located on the front of the cabinet.
Clock: Starting up and stopping the fan using the time

settings on the clock **I** located on the front of the cabinet.

- If the button mode is selected: Press the green pushbutton **⊘ Fan on** (The fan will start).

Stopping the fan in manual mode

Shut down using the red Fan off pushbutton. (The fan will stop)

Emergency stop

If there is any risk that may be due to non-compliance with general safety instructions (see p 5 to 8). Press button $\mathbf{\Phi}$ and the entire installation will stop automatically.

Remove the safety device of the button to be able to reuse the system after troubleshooting and repair.

Setting the clock



IMPORTANT: The clock operating and setting manual is supplied with the electrical cabinet.



SEE BOOKLET APPENDED TO THESE INSTRUCTIONS

24H AM/PM: Setting the display format.

- +1H: Communication of summer/winter time
- I: Display of the day of the week

()/(•): On/Off

- * : Constant On/Off
- ^(C): Automatic service
- +/-: Adjustment keys

Res: Reset

Menu: Programming

OK: Confirmation



Variable drive setting

Front :

/	_	_	、 、
	3.8 :	6	
		STOP	(ENT) (3)
\backslash	<u> </u>)	/

Reference	Description	Comments	
0	% Indicator	Goes on when a numerical value is displayed as a percentage.	
Ū	Hz indicator	Goes on when a numerical value is displayed in Hertz.	
	RUN indicator	Goes on when an activation control is triggered.	
1	PRG indicator	Goes on when the variable drive is in setup mode and flashes when it is in AUF mode.	
	MON indicator	Goes on when the variable drive is in monitoring mode.	
2	MODE key	Displays the operating frequency, settings and reasons for errors.	
3	ENT enter key	Menu selection/Value confirmation	
4	STOP key	Fan stop	
5	RUN key	Starting up the fan	
5	RUN indicator	Goes on when the fan is operating	
	LOC/REM (local/remote) key	Switches between the 2 modes.	
6	LOC/REM indicator	Goes on when the Local mode is activated (variable drive setting)	
7	Down key	Changing of values	
1	Up key	Changing of values	



Typical configuration :

The variable drive is factory set but it might be necessary to verify all the settings to make sure they are suited for the system on which it is used (speed, regulation setpoint etc.)

Setting	Description	Value	
FMOD	Input data by integrate terminal	3	
CMOD	On/Off control by the terminal block	0	
F360	VIA 0-10V input (PID control)	1	
Variable drive display value		0 frequency display	
F710	NB: The motor power display "5" is more representative of variable drive	3 current display	
	regulation	5 power display	
FH	Max. frequency (Hz)	50	
LL	Min. regulation frequency (Hz)	5	
UL	Max. regulation frequency (Hz)	50	
uL	Mains frequency	50	
uLu	Mains voltage	400	
Thr	Thermal protection	Is set automatically based on the power	



NB: Whe

When you change settings, the fan must be stopped; otherwise, the changes will not apply.



Setting the setpoint FC

Example :

- Sensor setpoint CP 50 : 0-10V
- System vacuum range : 0-2500Pa (Set to CP50)
 - <u>So:</u> 10V = 2 500Pa

You want the setpoint to be 800Pa, you will convert it into voltage.

You take Voltage : 0-10V with 0=XVacuum : 0-2500Pa with 0= required setpoint= 800Pa Setpoint = $X = (800 \times 10)/2500$ = 3.2V - Setting range FC of variable drive : $0 \rightarrow 50$ X=3.2 Voltage : FC : 0/50 $Fc = (3.2 \times 50)/10 = 16$

= Numerical value of the setting FC to enter for the variable drive

To access the setting FC of the variable drive, press the Up key (ref. 7). The setting FC is displayed.

Press the Up key to increase the value or the Down key to decrease it.

Once the value is reached, confirm by pressing the key « ENT » (ref 3)

The setting starts flashing to indicate memorising and the display goes back to its initial condition by displaying the frequency or power of the motor depending on the choice.







Location of settings:





 Always measure the voltage output from the CP50 to be sure that the sensor is sending information to the variable drive.
 The setpoint to enter depends on the vacuum with which you want to work



Possible alarms :

Setting	Description
OC1	Overintensity during acceleration
OC2	Overintensity during deceleration
OC3	Overintensity during constant-speed operation
OCL	Overintensity near the load during starting up
OCR	Overintensity near the armature during starting up
EPH1	Input phase fault or overuse of main circuit capacitor
EPHO	Output phase fault
OP1	Overvoltage during acceleration
OP2	Overvoltage during deceleration
OP3	Overvoltage during constant-speed operation
OL1	Variable drive overload fault
OL2	Motor overload fault
ОН	Overheating fault or thermal sensor fault
Etn1	Self-adjustment error
EtyP	Variable drive type error
OH2	External thermal input
E-18	VIA cable break
E-19	Error in communication between CPUs
E-20	V/F control error



FILTER MAINTENANCE

Pre-filter



From time to time (every week) as a preventive measure or whenever the 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. W000261362 and dry with air (dilution depending on fouling, see label on drum). Access to the pre-filters is through the air inlet.

Replacing the filter cassettes





<u>NB</u>: To replace the cassettes, 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 4 screws that hold the protective grille fastening
- 3 : remove the cassette
- 4: Put the clogged cassette back in the packaging of the new cassette
- 5 : Install the new cassette, screw back the screws and put the grille back
- 6 : Apply the starting up procedure

Users are strongly advised to replace the cassettes as soon as the system ceases to operate satisfactorily or an alarm indicates a system fault. (*When extraction is no longer adequate*).

The **AMBICLEAN ESSENTIAL 5000** uses filter cassettes with a unit filter surface of 42m², class EPA H13. Only original cassettes from **LINCOLN ELECTRIC**, part number W000373568 provides the maximum efficiency of the filter.











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Terminal block



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BORNIER	14 15 16
	3 17 18 19 20



SPARE PARTS

Electrical cabinet

Reference	Description	Part number	Quantity
ARMOIRE	BOX 3D 600*400*250	SAREL part no. 83027	1
A.T.U1 02	EMERGENCY STOP	MOELLER part no 263-467	1
D3/D5	CIRCUIT BREAKER PH+N 2A	KLOCKNER MOELLER part no. PLG4- C2/1N	1
D1	MOTOR CIRCUIT BREAKER 6.3/10A	KLOCKNER MOELLER part no. PKZM0-10	1
D1	CIRCUIT BREAKER AUXILIARY CONTACT	KLOCKNER MOELLER part no. NHIE11PK2M0	1
BUZZER	BUZZER ON PANEL	MOELLER part no.M22-XAM+M22-AM	1
H1	RED INDICATOR	MOELLER part no.207.908	1
H2	WHITE INDICATOR	MOELLER part no.207.907	1
KA2	MINIATURE RELAY 4P 24V	ELECTROMATIC part no.RMI 24V 4NO	1
KA1	MINIATURE RELAY 4P 24V	ELECTROMATIC part no.RMI 24V 4NO	1
D4/D2	TWO-POLE CIRCUIT BREAKER 1A	KLOCKNER MOELLER part no. PLS6- C4/2	1
Q1	DISCONNECTING SWITCH 32A	ABB part no OT32	1
S1	TRANSPARENT RED PUSHBUTTON	MOELLER part no.219.925	1
\$2	TRANSPARENT GREEN PUSHBUTTON	MOELLER part no.219.927	1
TR1	TRANSFORMER 50VA 400/24V	EBA/CEC part no TR50VA	1
TR2	TRANSFORMER 50VA 400/230V	EBA/CEC part no TR50VA	1

Filter

Reference	Description	Part number	Quantity
1	FILTER CASSETTE 42m ²	W000373568	2
2	BELTS	PLEASE ENQUIRE	2
ATV212	VARIABLE FREQUENCY DRIVE (in filter)	W000381518	1



PERSONAL NOTES

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