FILTERING UNIT

HV35D FILTERING UNIT HIGH NEGATIVE PRESSURE WITH AUTOMATIC UNCLOGGING

SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE

N° W000340001

EDITION : EN
REVISION : B
DATE : 02-2020

Instructions for use

REF : **8695 8427**

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.

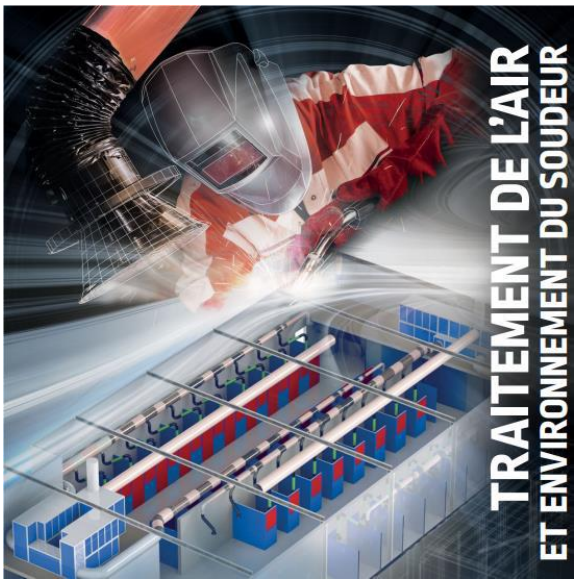
Finally we would ask you kindly to inform your supplier of any error which you may find in this instruction manual.

CONTENTS

Lincoln Electric reserves the right to modify its machines without notice.

Illustrations, descriptions and specifications are given for guidance only and are not binding on the manufacturer.

After starting up the machine, the maintenance department must keep these instructions for future reference.



Introduction

Dear Madam/Sir,

Thank you very much for purchasing **Lincoln Electric** equipment for the extraction and filtration of grinding/welding/cutting dust.

Lincoln Electric has extensive experience and is renowned for its welding and cutting equipment and products.

The improvement of the working environment of welders has always been one of its priority concerns.

Quality hinges on the quality of the environment and the well-being of workers.

This document contains the instructions for use and safety relating to the equipment, and also the assembly and maintenance instructions and commercial part numbers relating to this product.

CONFORME CE

Machinery Directive :	2006/42/CE
Electromagnetic Compatibility Directive :	2014/30/UE
RoHS Directive:	2011/65/UE

REVISIONS

REVISION B **02/20**

DESIGNATION	PAGE
Created in English	

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

FILTERING UNIT HV35D

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 differing assembly or modification will void the validity of this certificate. That is why the manufacturer must be called in for any modification. Failing that, the contractor making the changes must offer new certification. We shall not be liable in any way in the event of such new certification. This document must be submitted to your technical or purchasing department for filing.

DESCRIPTION	**FILTERING UNIT HV35D**
TYPE	**W000340001**
NUMBER	**See identification plate**

2) This equipment complies with European Directives.

Machinery Directive :	2006/42/CE
Electromagnetic Compatibility Directive :	2014/30/UE
Directive ROHS :	2011/65/UE

3) Using the following harmonised standards:

EN ISO 12100:2010
EN ISO 13850:2008
EN ISO 13857:2008
EN 60204-1:2006/AC:2010
EN 61000-6-2:2005
EN 61000-6-3:2007

4) The Air Treatment Products Manager, authorised to prepare the technical construction document.

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

5) Manufacturer.

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

CERGY, date: 29/10/2019

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 till the machine is finally destroyed.
This manual explains how to transport, install, use and maintain the Filtering Unit. It cannot in any event replace the experience of the user for operations of varying difficulty.
Before the Filtering Unit 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 contact the technical department for any requests.

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.

Operating position

Arc welding and cutting requires strict compliance with safety requirements in respect of electrical currents (Order of 14.12.88).

Servicing

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 strike 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 14/11/88, 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 14/11/88).
— 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 insulating personal protection (Order of 14/12/88, SectionIII).

— 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.

Also 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 filtering 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) of gaseous pollutants relating to the specific pollution generated by the method (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, alumina 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 - OPERATING THE MACHINE

OVERALL DESCRIPTION

Extraction of welding fumes at source is the most effective solution for ensuring that welders work in a comfortable environment.

Filtering Units **HV35D** are particularly studied for extracting welding fumes with a fume extraction torch or a nozzle with a magnetic stand.

The turbine output/pressure specifications are fully adapted to the required result, that of extracting fumes without disturbing the gaseous protection of the weld pool.

The Filtering Unit **HV35D** is equipped as standard with a high-capacity filter cartridge and an automatic cartridge unclogging system in order to ensure effective extraction of fumes from the torch at all times.

The direct-drive motor and turbine assembly makes this unit an efficient piece of industrial equipment needing little maintenance.

The welder is kept comfortable during the operations thanks to the very low sound level of the Filtering Unit **HV35D < 70 dB (A).**

This Filtering Unit **HV35D** is also controlled by the welding arc, thus reducing its power consumption (as the average arc time of a welder varies from about 40 to 60 % of their attendance time).

That is why the unit **HV35D** is to be connected to a low-negative pressure duct to carry the pollutants (fumes and gas) generated by welding outside the factory.

DELIVERY OF THE FILTERING UNIT HV35D

The extraction unit **HV35D** is supplied complete, in operating order and **is pre-wired for use with 400V three-phase**

Among other things, it includes the welding current sensor, the air regulator filter for automatically unclogging the filter cartridge and the high-efficiency filter cartridge.

A 5-metre long power supply cable is also supplied as standard.

SAFETY SYSTEMS

① **Motor**

Current safety: magneto-thermal protection on power supply

② **Turbine**

Pressure (P) safety: the turbine intake has an pressure sensor that monitors the volume of extracted air.

In the event of malfunction, the fault indicator goes on and information is sent via a normally open contact for use outside the Filtering Unit.

This type of fault is due to the obstruction of the turbine air inlet for the following reasons :

- Filter cartridge saturated.
- Extraction pipe blocked or flattened.
- Fume extraction torch fouled.

IMPORTANT :

This safety system alone can guarantee effective extraction over time.
The torch/extraction rate combination has been selected for optimum extraction. Working with an abnormally low rate would re-expose the welder to fumes.

③ **Mechanical**

The turbine is mechanically protected, so the operator cannot come in contact with the hot parts of the turbine.

Further, the turbine is driven directly by the motor and the cartridge allows high filtration quality, minimising maintenance and allowing the automation of the welding process.

④ **Unclogging**

The high negative pressure Filtering Unit **HV35D** has a check valve at its air inlet, which prevents dust from returning to the sensor or the fume extraction torch during the unclogging process, thus protecting the operator

TECHNICAL SPECIFICATIONS

TURBINE	Electricity supply 230V/400V. 50Hz 3 ph Maximum pressure 3000 mm/CE ≃ 30000 Pa Max. flow rate 310 m3/h Intake gas temperature: below 80°C.
MOTOR	Asynchronous motor 3 KW, three phase IP 55 Multiple voltage operation 230/440V. - 50 Hz
MUFFLERS	The turbine has two mufflers at the entry and exit
SOUND LEVEL	70 dB(A)
CONNECTION	∅ at extraction unit inlet : 45 mm inner
COMPRESSED AIR	4 at 7 bar max - pressure reducer separator filter inclus
FREE FLOW RATE	310 m3/h
MAX. NEGATIVE PRESSURE	30.000 Pa
DIMENSION	L : 1000 mm W : 585 mm H : 974 mm.
WEIGHT	85 kg
DUST DRUM	Capacity : 15 L
FILTRATION	1 high-efficiency 2,5 m² polyester cartridge Classification : EU 8/9 - Test BIA USGC
CONTROL	**Two operating modes**.

- ***Automatic***:

As soon as the arc is struck, the filtering system starts up.
After the arc stops, the turbine also stops (delayed stopping adjustable from 5 to 60 s, preset in the factory at 20 seconds).

- ***Manual*** :

Continuous turbine operation.

✸ A turbine in service signal can be transferred to the power contactor of the turbine control so as to put the system fan under the control of the torch in service extracting unit(s).

CONNECTION TO THE SYSTEM

Power supply 230/400V. - 50 Hz - 3ph. + EARTH

All the operations relating to the installation, 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.

The machine is originally supplied for 400V three phase.

It may be connected to 230V three phase according to your system.
To do so, the terminal plate of the motor and the auxiliary power transformer must be rewired correctly

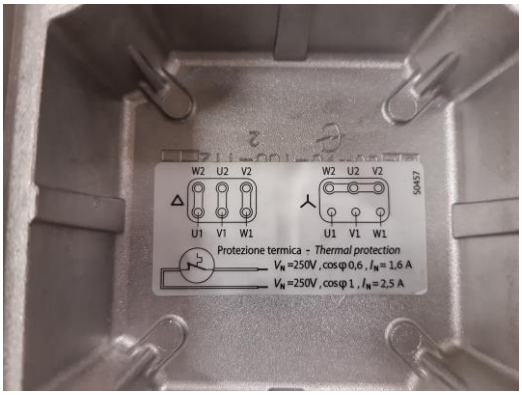
Wiring for 230V/400V three phase

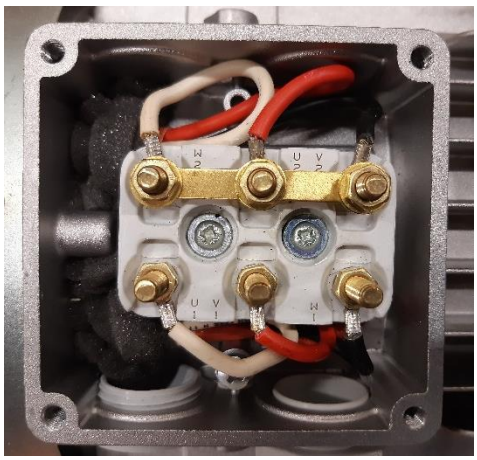
Depending on the power voltage of your system, set up the Filtering Unit accordingly :

- Motor connection,
- Transformer connection,
- Thermal circuit breaker rating

1) <u>At the motor, connection 230V / 400V :</u>

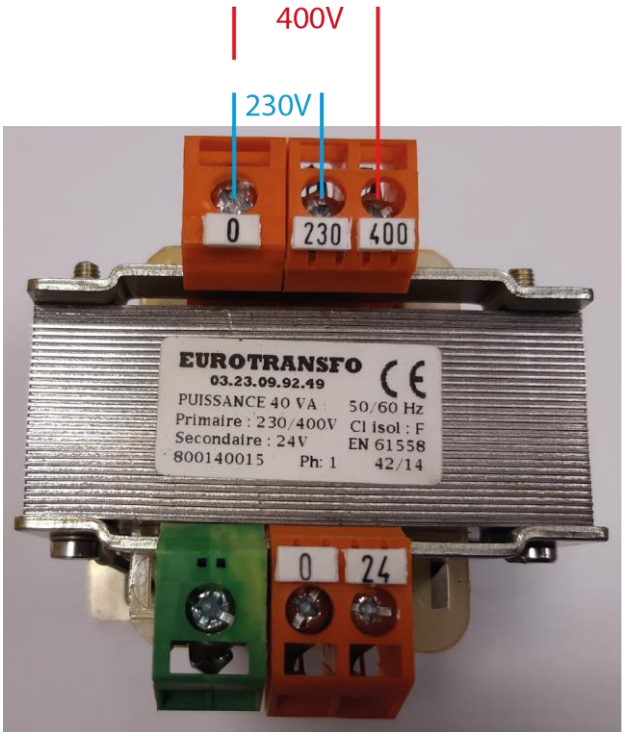
Delta / 230V Star 400V





2) **<u>At the auxiliary transformer</u>** of the control cabinet turbine :

Wire the power supply of the transformer for 0-230V or 0-400V



3) **<u>Adjusting the motor thermal protection :</u>**

Set the thermal circuit breaker to
- 7A for connection to 400V three phase
- 11A for connection to 230V three phase

4) **<u>Upon powering up :</u>**

Check the extraction/discharge rotation direction:
If reversed, interchange two of the three phases at the terminal plate of the motor or at the thermal circuit breaker of the motor.

5) **<u>Pneumatic</u>** :

Supply of dry air from 4 bars to 7 bars max.

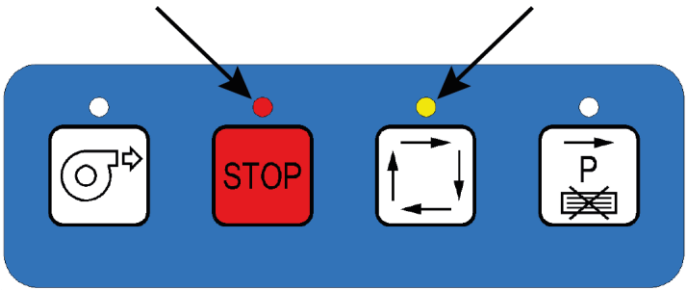
A pressure regulator is supplied with the unit **HV35D**

The normal operating pressure of the machine is 4,5 bars.
Excessively high pressure would lead to premature filter cartridge ageing and could make it burst.

OPERATING PRINCIPLE

1) With the unit **HV35D** electrically connected to the power supply system and configured for that particular power supply system, turn the front disconnector to the position **1.ON**

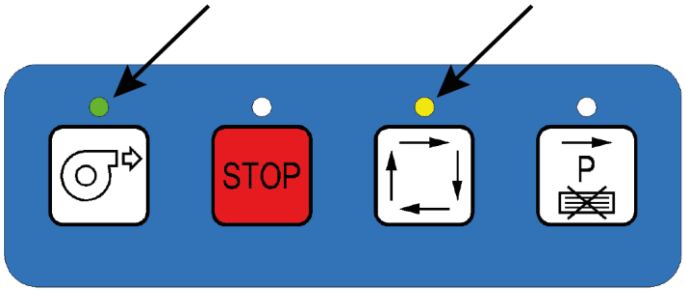
The red indicator is on, as is the yellow indicator showing that the automatic mode has been selected by default.



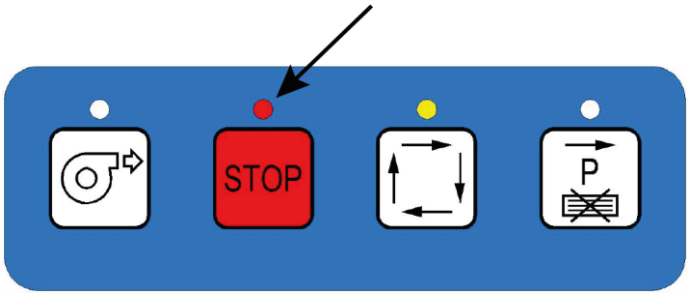
2) In AUTOMATIC MODE,

As soon as the welding current is sensed (if the current sensor is on the ground cable) or if an external contact is controlled (normally open contact to connect, see electrical diagram), the turbine starts up automatically.

The red stop indicator goes off, the turbine on indicator goes on, and the turbine starts operating in automatic mode



When the welding current (or the signal from the outside control) disappears, the turbine is kept in operation for 20 seconds by a timer. The timer may be adjusted from the PCB from 5 to 60 seconds (see time setting), the green indicator flashes during that delay.



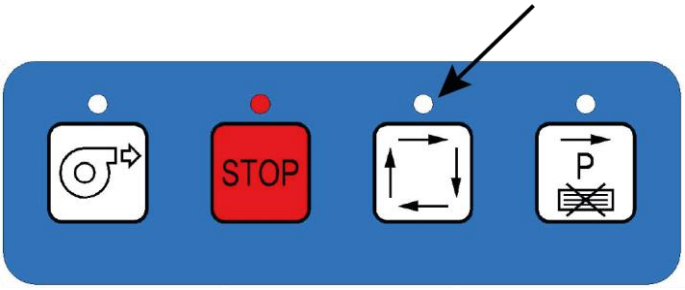
The red indicator flashes during the unclogging cycle (7 successive pulses lasting 3/10ths of a second, 10 seconds apart).

If the automatic starting up order is given again or if the welding current is restarted during the stopping delay, the green indicator becomes steady and the turbine operates automatically once again.

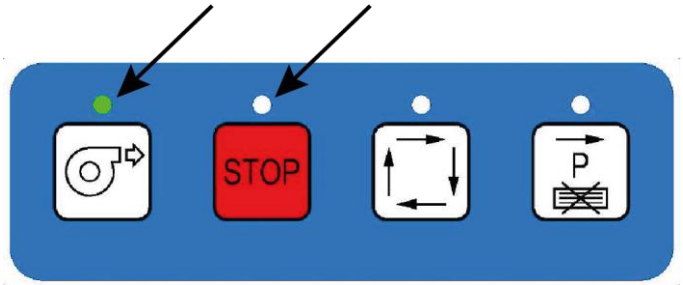
During the unclogging process, pressing the stop button will stop the unclogging cycle, and stopping will have priority.

3) Use in **MANUAL MODE :**

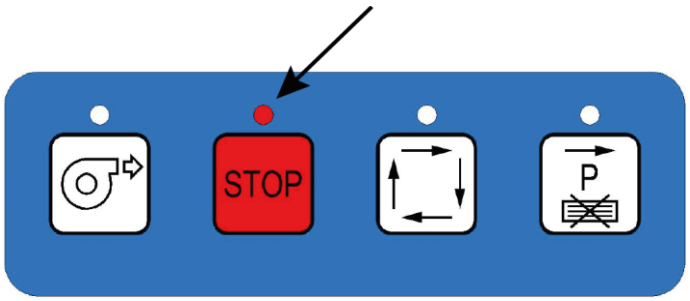
Unselect the automatic mode by pressing the automatic key, the orange indicator will go off



Press the turbine key to put it into service.
The green turbine in service indicator goes on and the red indicator goes off.



Pressing the STOP button will stop the turbine and trigger the automatic unclogging cycle of the filter cartridge
The red indicator flashes as long as the unclogging cycle is not complete.
➔ 7 successive pulses of 3/10 ths of a second set 10 seconds apart.

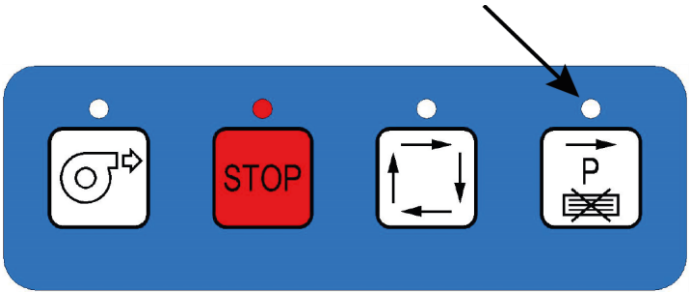


A second press on the stop button will stop the unclogging cycle, and stopping will have priority.

If you press the turbine on button once again during the unclogging cycle, the cycle will stop and the turbine will start again. The green turbine in service indicator goes on and the red STOP indicator goes off.

4) MANUAL UNCLOGGING TEST

With the turbine stopped, automatic turbine selection is removed and the STOP key indicator is on.



Pressing the cartridge fouled key triggers the unclogging cycle and the red indicator of the STOP key flashes.

The cycle will be completed (7 pulses of 0.3 seconds set 10 seconds apart), unless you press STOP, which priority action stops the cycle.

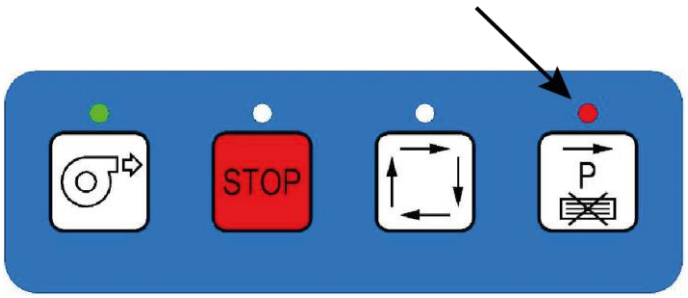
5) TURBINE ALARM.

The turbine has two malfunctioning alarms:

- A Motor Thermal Fault alarm:
  Let the motor cool down and check its ventilation

- A Turbine Extraction Fault alarm:
  Turbine negative pressure too great (hose flattened, tool obstructed or filter cartridge saturated).

Regardless of the mode of operation or type of fault, the red indicator goes on and a normally open contact available on the PCB closes, giving a signal that can be used by an automatic machine or to stop welding if needed.



ADJUSTMENTS BEFORE PUTTING INTO SERVICE

1) Flow rate safety system :

When the turbine **HV35D** is connected electrically and otherwise to the fume extraction torch, it is important to make sure that the flow rate safety system is working satisfactorily and to adjust it if needed using the procedure below :

The pressure sensor connected to the rear chamber of the cartridge measures the negative pressure of the turbine. That negative pressure corresponds to the head loss from the cartridge, the hose to the tool and the torch itself.

The extraction rate varies with the negative pressure: the greater the negative pressure, the lower the rate.
The effectiveness of fume extraction is directly related to the extraction rate; if the rate is too low, the operator safety conditions are no longer filled.

By controlling the negative pressure of the turbine, we can guarantee method efficiency.

The sensor is set in the factory to 200mbar.
If the setting is not suitable for the application, the negative pressure level can be adjusted by turning the adjustment screws located below the sensor (turbine in service).

Check the proper working of the installation by deliberately blocking the extraction openings of the fume extraction torch.

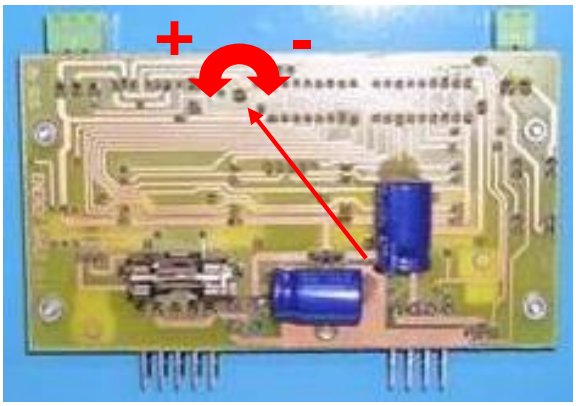
→ The alarm indicator must go on.

2) Setting the delayed turbine stopping time.

The turbine is delivered with a deferred stopping delay that is factory set to 20seconds.
That delay is very useful while making small welds, or during tack welding or metal framework welding.

In order to avoid restarting with each ark strike, the turbine is kept operating for 20 seconds
If the delay is too long or short, it can be modified with the help of the adjustment potentiometer on the PCB.

With a small screwdriver, increase the delay by turning the potentiometer anticlockwise or reduce it by turning the potentiometer clockwise.
The delay is adjustable from 5 seconds to 60 seconds.



D - MAINTENANCE

GENERAL 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.

Take precautions while maintaining the electrical frame. 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 have been installed perfectly and that any tools have been removed from the machine.
Make sure that each safety device is in good condition and legible.

Hazards relating to rotating turbines: cutting or shearing.
The openings on the machine and its cover allow access to the rotating turbine after the manifolds or blind flanges are removed.
Never put your hands or any other object through those openings.

Prerequisites

All routine maintenance operations must be carried out by disconnecting the machine from the electricity supply.

During maintenance work, the operator must wear PPE (protective gloves, goggles, mask and clothing on the body).

MAINTENANCE OF MECHANICAL PARTS

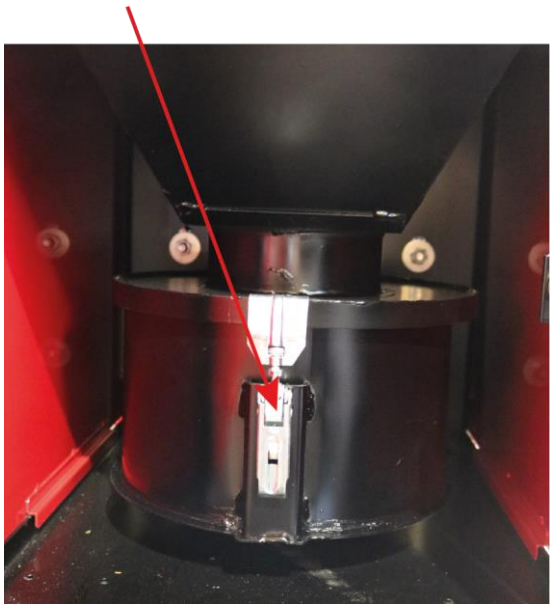
The machine requires negligible mechanical maintenance if it is used correctly in accordance with its technical characteristics.
Before any type of maintenance that is not clearly defined in these instructions, please make inquiries with the technical department of **LINCOLN ELECTRIC**.
The performance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

MAINTENANCE: DUST DRUM

The **HV35D** unclogging unit makes it necessary to regularly empty the dust drum.

Make sure that the power to the Filtering unit is switched off.
Use goggles and a respiratory mask in order to not inhale the dust built up in the drum.

- Open the lower front door, which is held closed by a magnet,
- Unfasten the latch of the dust drum (press the button)
- Open the latch and move it away



Remove the dust drum, empty it,
and reprocess the waste using the procedure for hazardous waste

To put in back in place,

- Make sure that rear tab of the drum is engaged in its housing (enter the drum in line) and position the latch.
- As you centre the drum in its housing, lock the latch.

MAINTENANCE: FUME FILTER CARTRIDGES

Change the filter cartridge from time to time as a preventive measure, or whenever extraction does not seem adequate.

Run a manual cartridge unclogging cycle before replacing it, so as to remove any dust from the surface into the drum.

CAUTION! All the operations below must be carried out with cut-resistant gloves, safety goggles and a respiratory protection mask

Before any work, make sure you have switched off the power supplies and disconnected the compressed air supply.

1. Open the front door by loosening the two closing screws.
2. Loosen the screws by three or four turns to allow the cartridge to rotate, while releasing the pressure on its seal.
3. The cartridge is held by three pins; put in a new cartridge and tighten the three screws to compress the seal
4. Close the door and then tighten the fastening screws

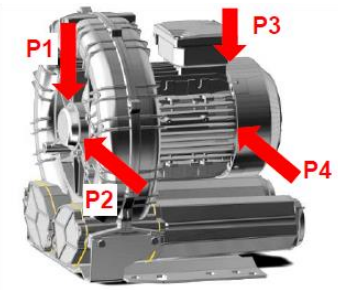
TURBINE

Cleaning the machine :

Every 3 or 6 months depending on the type of work and the usage time (by an approved technician) :

Vibration measurement :

To determine the vibration speed (mm/s), use an electronic vibration meter and apply it to the following points:
Points P1 and P2 (front bearing): Place the vibration meter close to the front bearing and log the highest value.
Points P3 and P4 (rear bearing): Place the vibration meter on the frame of the electric motor, near the bearing housing (not on the fan guard) and log the highest value.



Légende : Classification des machines : *Classe I* = SCL avec moteur électrique d'une puissance ≤ 15 kW *Classe II* = SCL avec moteur électrique d'une puissance > 15 kW Zones d'évaluation : *Zone A* = les vibrations (a) à l'intérieur de cette zone sont acceptables pour un service de longue durée. *Zone B* = les vibrations (a) à l'intérieur de cette zone sont inacceptables pour un service continu de longue durée. La machine peut fonctionner dans ces conditions pendant une période limitée, jusqu'à ce que l'occasion pour une intervention corrective adéquate se présente.	Valeur efficace de la vitesse de vibration [mm/s]	*Classe I* (≤ 15 kW)
	a<1,8	*A*
	1,8<a<4,5	*B*

Vibration values above zone B may not be considered to be acceptable as they could seriously damage the machine.

CAUTION! Deposit inside the compressors could lead to:

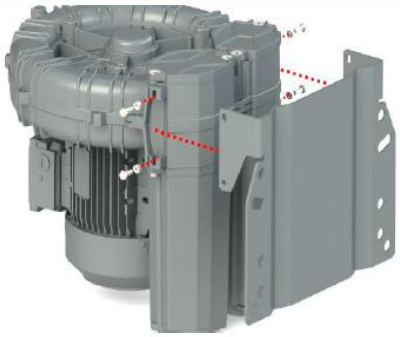
- variations in operating characteristics;
- cancelling of clearance, and therefore seizing;
- rotor unbalance.

Cleaning the inside :

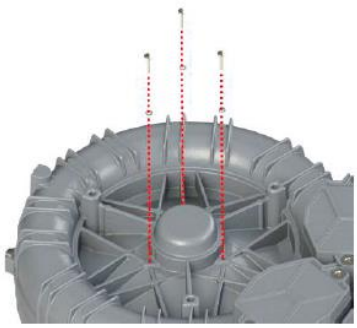
To clean the inside of the machine, proceed as follows:

- Set the machine vertical by placing the fan on a flat and stable surface (1).
- Loosen the screws 920 (1).
- Remove the stand 183 (1).
- 9 Loosen the screws of the cover (3 Philips head and 9 Allen screws)
- In the two grooves located between the body 161 and the cover 162 lever up and remove the cover
- Loosen the screw900 and remove the washer 365(4).
- Remove the bearing 321 and the cover 360 of the bearing using an extractor (5).
- Remove the turbine 230 (6).
- Clean and reassemble, in reverse order of assembly.
- Make up the seal 423 with Loctite598 or the like after carefully cleaning the surfaces of the previous seal

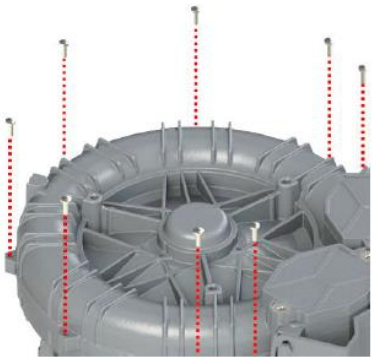
1



2

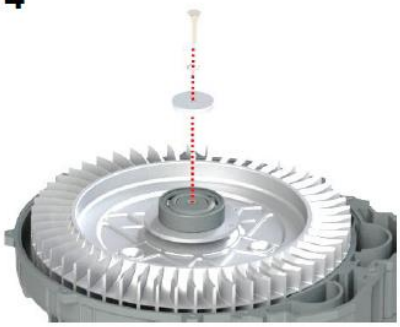


2

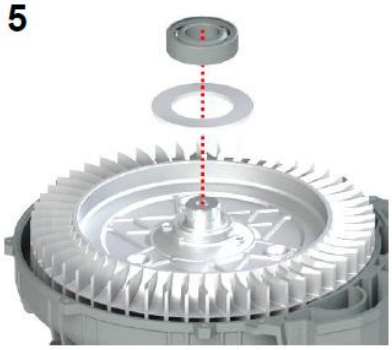


3

4



5



6

Life of bearings :

In normal working conditions, machine bearings must be replaced every 25,000 hours (operation to be carried out by**LINCOLN ELECTRIC** personnel only) or three years if the 25,000 hours of service are not reached.

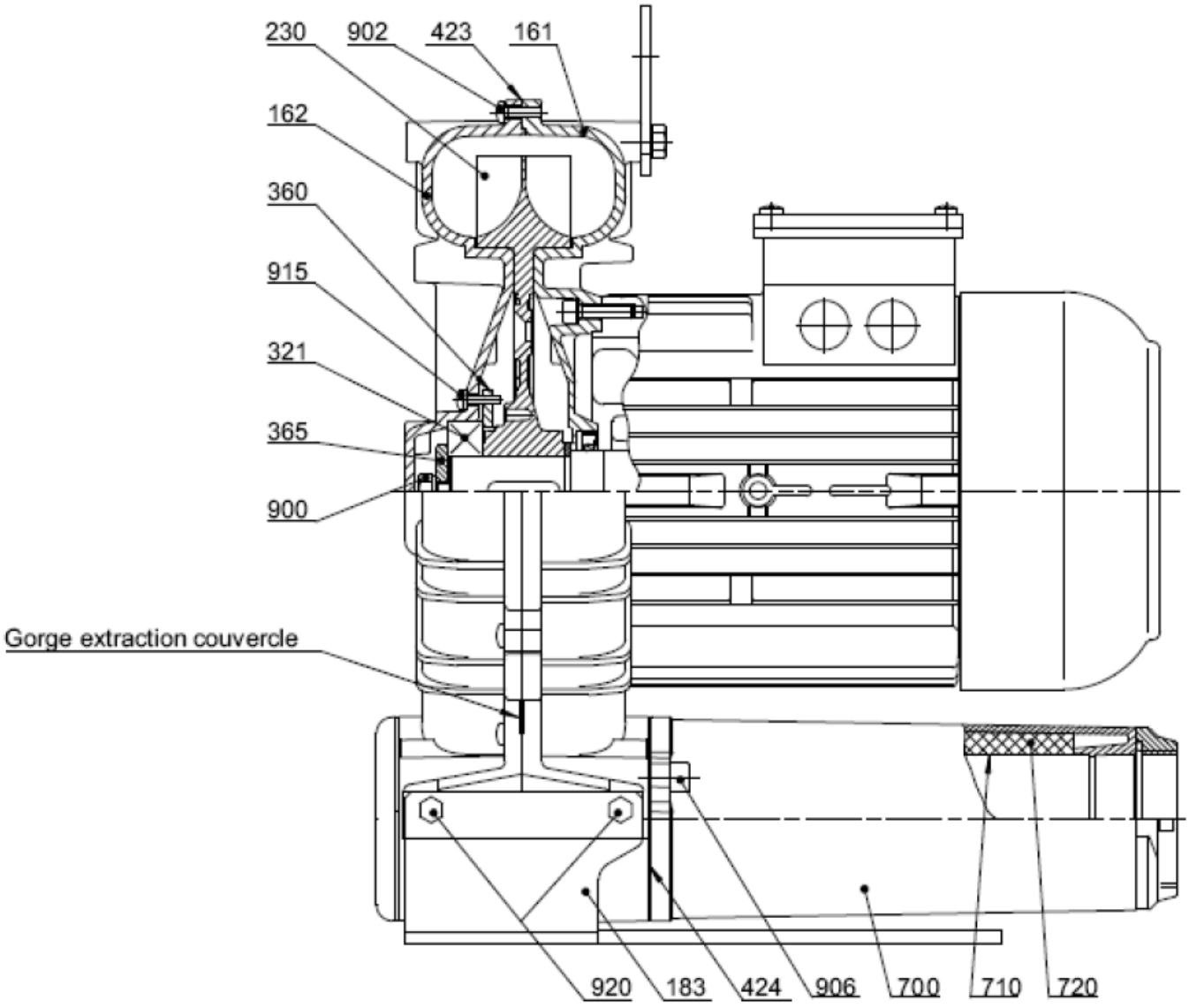
Replacement of sound-proofing boards:

- Loosen the screws 906 (1)
- Remove the mufflers 700 from the unit. Take care to not misplace the seals 424.
- Extract the foam720 from the muffler bodies.
- Collect the meshes 710.
- Replace and put back, in reverse order, and remember the seals 424.

Motor :

Clean the motor cooling impeller blades (after every 6 months).

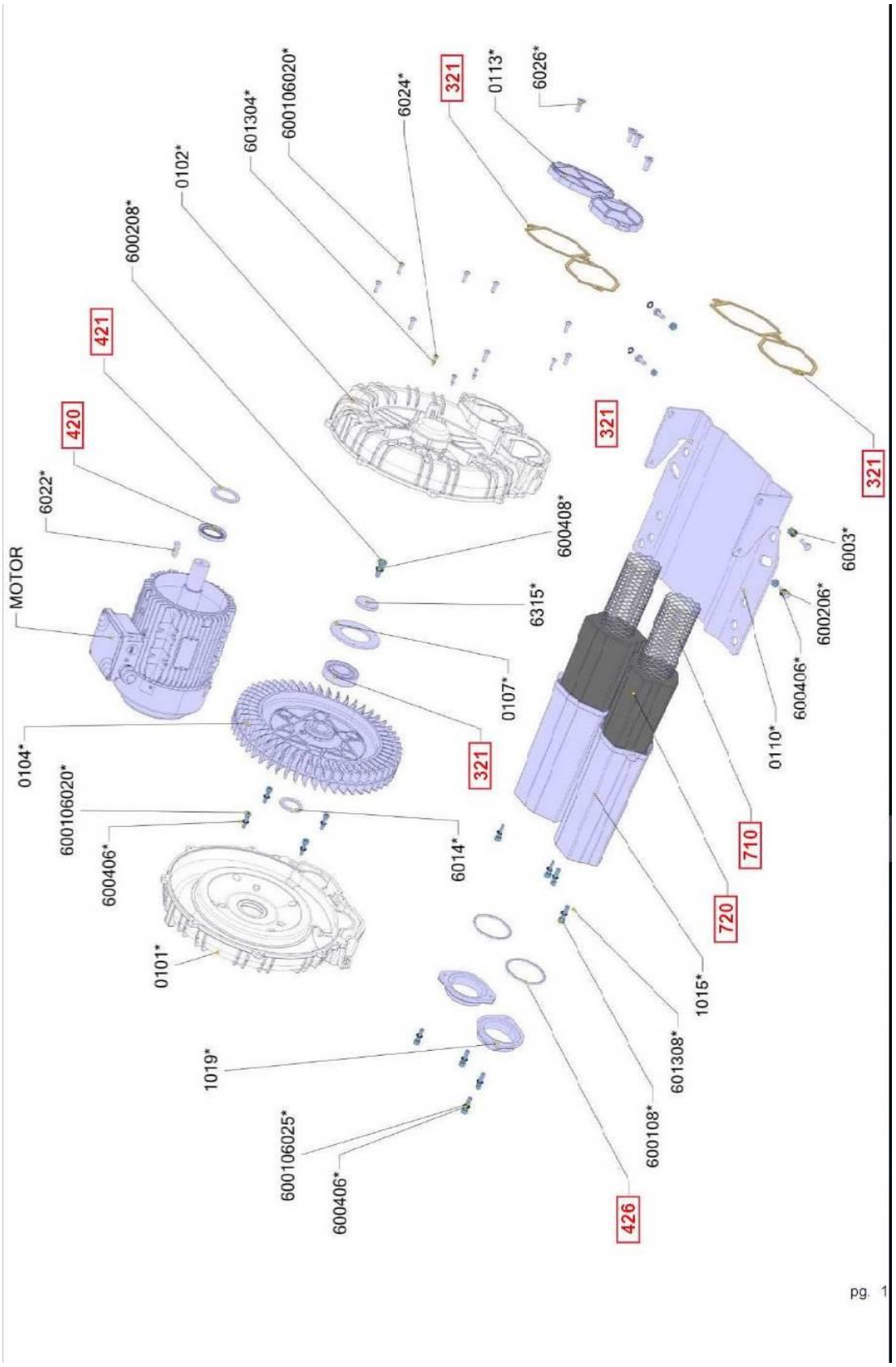
NB: This Filtering Unit does not require lubrication.



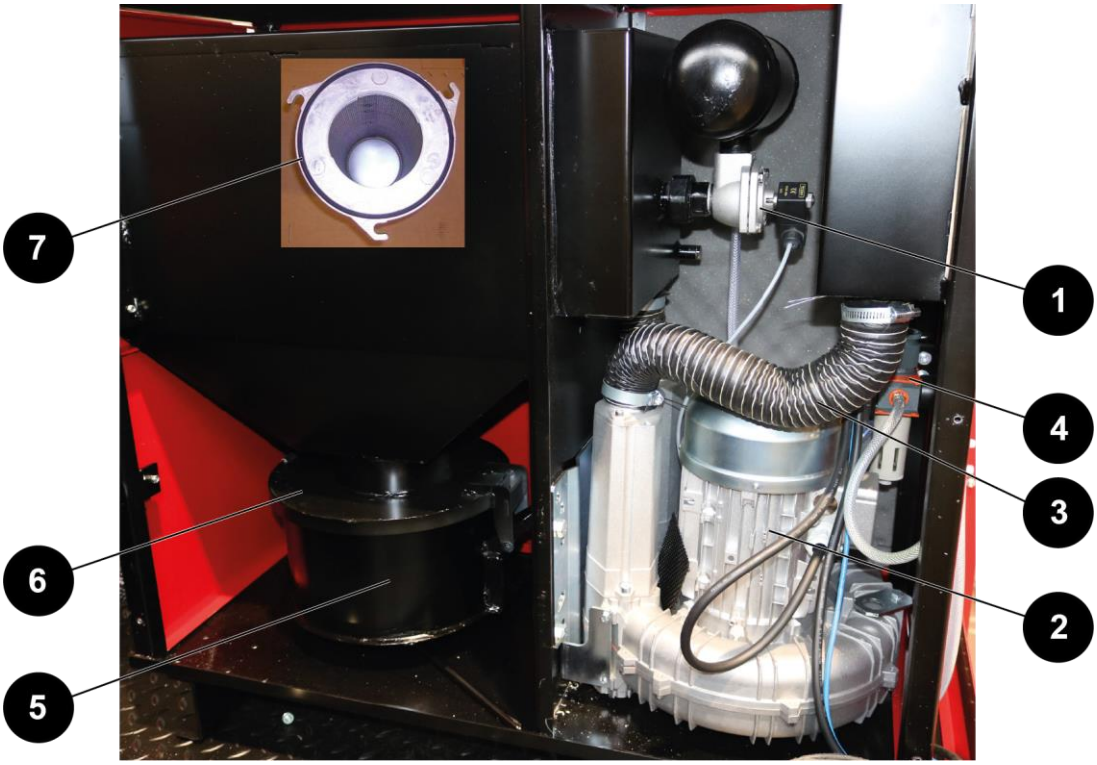
SPARE PARTS: TURBINE

Kit of spare parts for turbine, part no. ATS61000203

➔ Includes the parts surrounded in red



SPARE PARTS: FILTERING UNIT

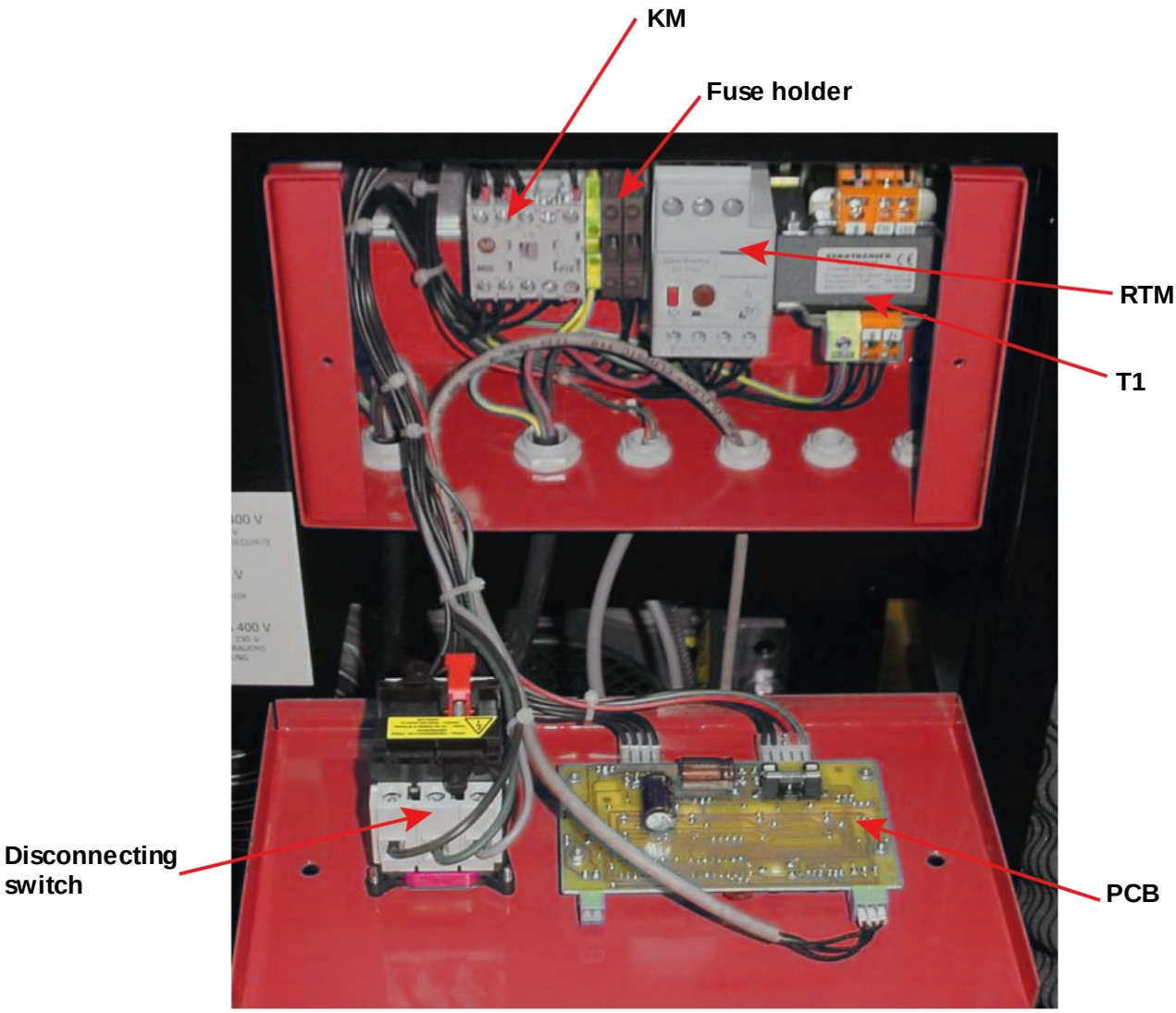


Description	Reference	Part no
Unclogging solenoid valve	**1**	S94002086
Turbine 3kW	**2**	W000278615
Kit of spare parts for turbine	**2**	ATS61000203
High negative pressure hoses	**3**	Please enquire
220 mbar HP pressure switch		Please enquire
Pressure reducer filter	**4**	W000272058
Dust drum	**5**	Please enquire
Dust drum latch	**6**	Please enquire
Polyester filter cartridge	**7**	W000379693
Current sensor		W000379696

SPARE PARTS: PART NUMBERS AND OPTIONS

✓ Unclogging filtering unit HV35D	W000340001
✓ Metal pre-filter kit	W000340258
✓ Hose VAC Ø 45 mm length 5 m with end fittings	W000402139
✓ Hose VAC Ø 45 mm length 10 m with end fittings	W000402141
✓ Set of 2 end fittings for hose VAC 45	W0003719772
✓ Round nozzle with magnetic stand	W000380755
✓ Long nozzle 350mm with magnetic stand	W000380754
✓ Discharge hose Ø 80 mm length 5 m	W000386139
✓ Discharge hose Ø 80 mm length 10 m	W000386140
✓ Discharge hose Ø 80 mm length 15 m	W000386141
✓ Contact type torch support	W000279767

SPARE PARTS: ELECTRICAL CABINET

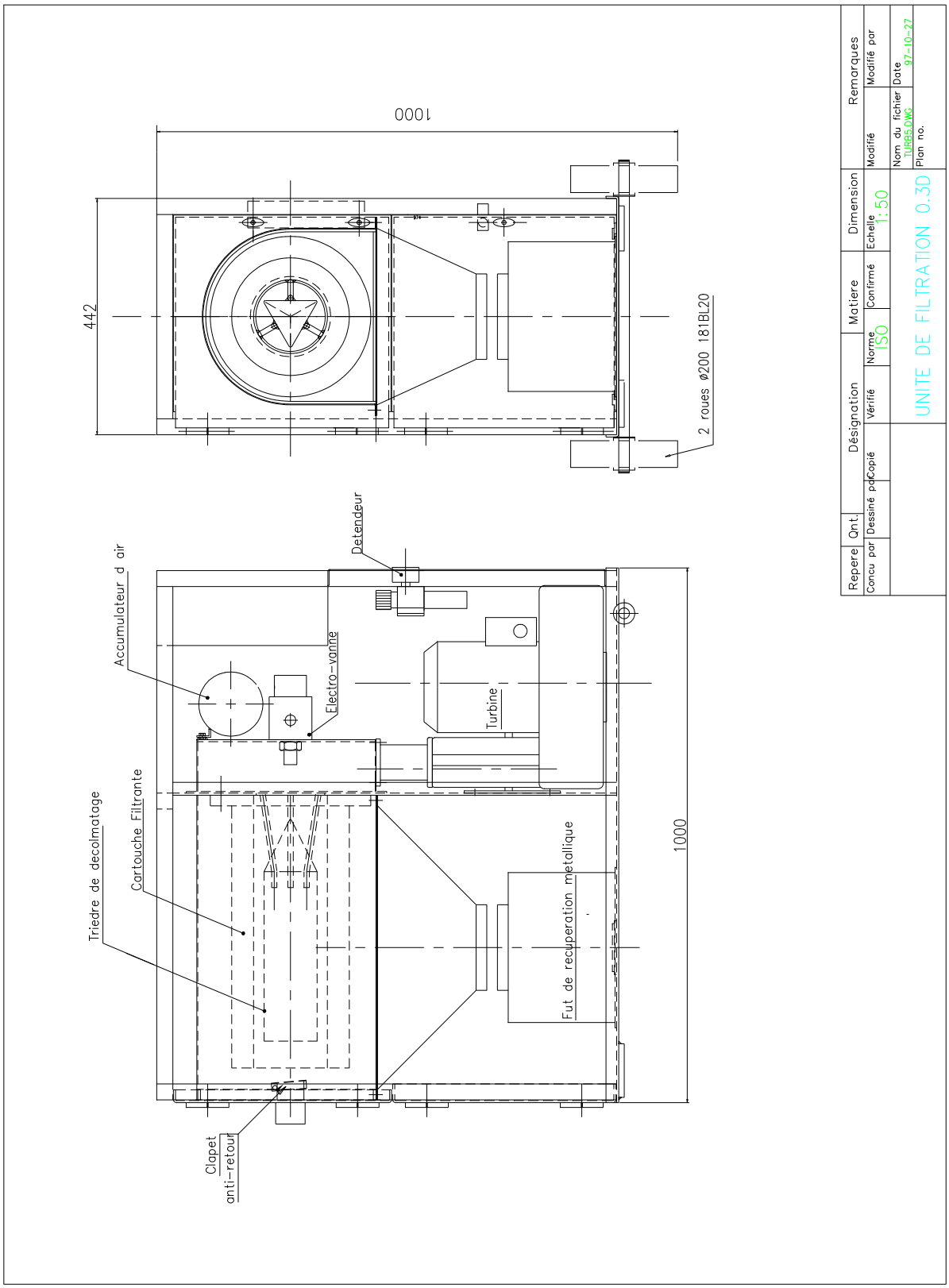


Description	Reference	Part no
Contactor	**KM**	Please enquire
Thermal relay	**RTM**	Please enquire
Transformer	**T1**	Please enquire
Disconnecting switch		Please enquire
Fuse holder		Please enquire
Printed circuit board		Please enquire

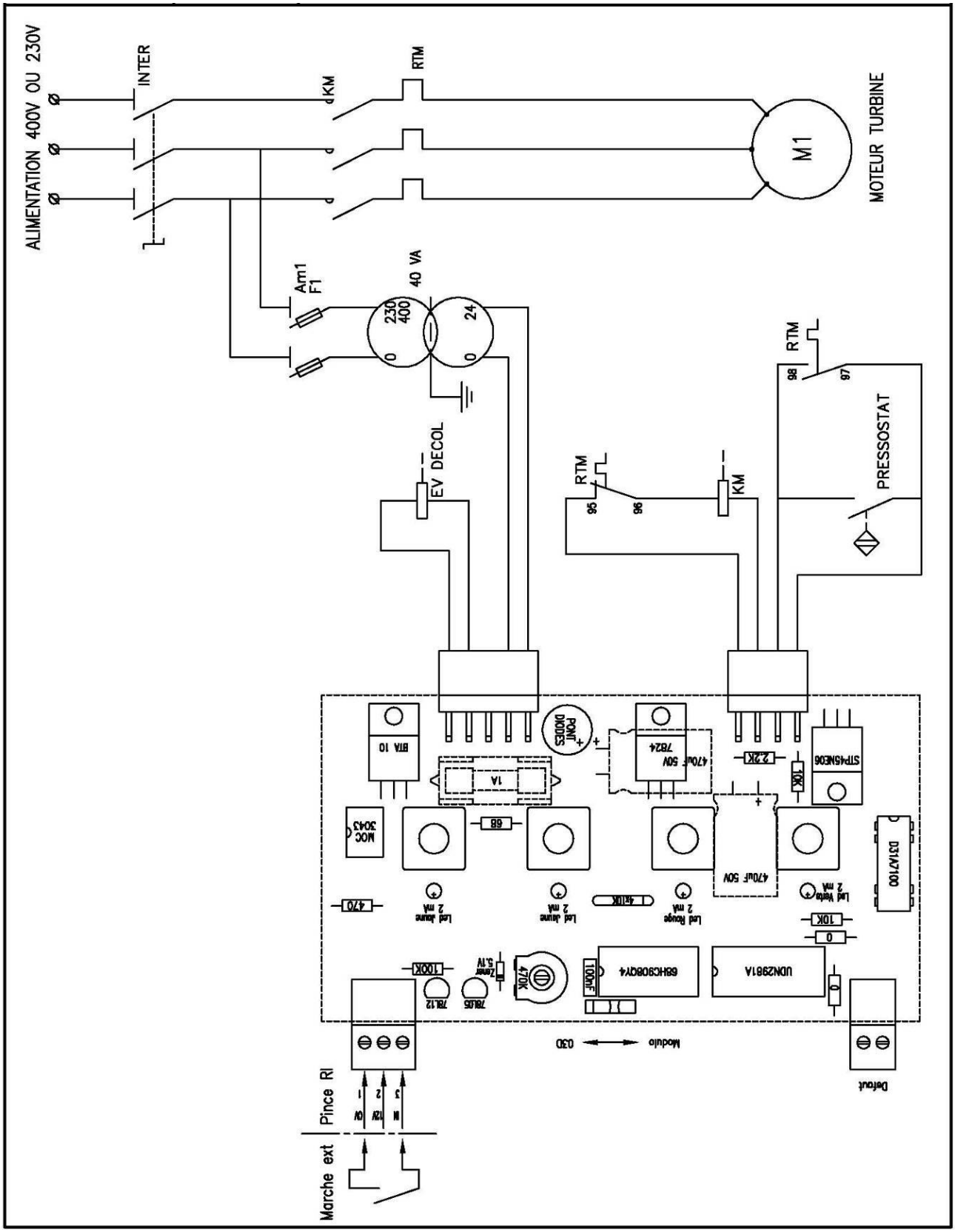
TROUBLESHOOTING

Problème	Cause	Solution
L'unité ne démarre pas	Le câblage électrique n'est pas correct.	S'assurer que le branchement électrique correspond au schéma indiqué dans la boîte à bornes.
	La tension d'alimentation n'est pas adaptée.	S'assurer que la tension d'alimentation, mesurée sur les bornes du moteur, est égale à +/-5% de la tension nominale.
	La turbine est bloquée.	Faire réparer la machine par du personnel qualifié.
Débit d'air nul ou insuffisant	Le sens de rotation est erroné.	S'assurer que le sens de rotation correspond à celui qui est indiqué sur le carter protégeant le ventilateur du moteur.
	Le filtre d'aspiration est bouché.	Nettoyer ou remplacer la cartouche.
Absorption de courant supérieure à la valeur admise	Câblage erroné.	S'assurer que le branchement électrique correspond au schéma indiqué dans la boîte à bornes.
	Chute de tension d'alimentation.	Rétablir la tension d'alimentation des bornes avec les valeurs admises.
	Le filtre d'aspiration est bouché.	Nettoyer ou remplacer la cartouche.
	Des dépôts se sont accumulés à l'intérieur de l'unité.	Faire nettoyer l'intérieur de la machine par du personnel qualifié.
	L'unité travaille avec une pression et/ou dépression supérieure à la valeur admise.	Agir sur l'installation et/ou la vanne de réglage pour diminuer les différentiels de pression.
Température de l'air de refoulement élevée	L'unité travaille avec une pression et/ou dépression supérieure à la valeur admise.	Agir sur l'installation et/ou la vanne de réglage pour diminuer les différentiels de pression.
	Le filtre d'aspiration est bouché.	Nettoyer ou remplacer la cartouche.
	Des dépôts se sont accumulés à l'intérieur de l'unité.	Faire nettoyer l'intérieur de la machine par du personnel qualifié.
	Les tuyaux d'aspiration et/ou de refoulement sont obstrués.	Eliminer les obstructions.
	Température de l'air aspiré supérieure à 40°C.	Utiliser des échangeurs de chaleur pour diminuer la température de l'air aspiré.
Bruit anormal	Le panneau d'insonorisation est endommagé.	Remplacer le panneau d'insonorisation.
	La turbine frotte contre la carcasse.	
	a. L'unité travaille avec une pression et/ou dépression supérieure à la valeur admise.	Agir sur l'installation pour diminuer les différentiels de pression.
	b. Diminution des jeux d'assemblage entraînée par des dépôts internes (poussière, impuretés sur les tubes, résidus de procédé, etc.).	Faire nettoyer l'intérieur de la machine par du personnel qualifié.
	Roulement usé.	Remplacer le roulement.
	L'unité n'est pas installée dans une position adaptée.	Installer les unités sur des structures qui ne peuvent pas transmettre ou amplifier le bruit (réservoirs, plaques en tôle, etc.).
Vibrations anormales	La turbine est endommagée.	Remplacer la turbine.
	Des dépôts se sont accumulés dans la turbine.	Faire nettoyer l'intérieur de la machine par du personnel qualifié.
	L'unité n'est pas fixée correctement.	Fixer l'unité avec des dispositifs antivibrations.

DRAWING OF THE FILTERING UNIT HV 35D



ELECTRICAL DIAGRAM



PERSONAL NOTES

Lincoln Electric France S.A.S.
Avenue Franklin Roosevelt 76120 Le Grand Quevilly
76121 Le Grand Quevilly cedex
www.lincolnelectriceurope.com