



INSTRUCTION MANUAL
Horizontal Basis/Plus
ID:807230

Important user information

Please read this entire manual to fully understand the safe and effective use of this product.


In case you have any comments about this manual we will appreciate receiving them at the address below.

Warranty and Liability

Jouan Nordic A/S guarantees that the product delivered has been thoroughly tested to ensure that it meets its published specifications. The warranty included in the conditions of delivery is valid only if the product has been installed and used in accordance with the instructions supplied by Jouan Nordic A/S.

Jouan Nordic A/S shall in no event be liable for incidental or consequential damages, including without limitation, lost profits, loss of income, loss of business opportunities, loss of use, and other related exposures, caused by e.g. incorrect use of the product.

Symbols used in this manual

	NOTE Used to direct attention to a special item.
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Enclosure: Declaration of conformity

1. Introduction

The HOLTEN LAMINAIR HORIZONTAL BASIS/PLUS series are thoroughly tested products designed to protect the work process and the handled product against particle- or microbiological contamination.

The HORIZONTAL BASIS/PLUS series complies with I.E.S Recommended Practice; IES-RP-002-86; January 1986; Laminar Flow Clean Air Devices and the Nordiska R³-föreningens Norm för öppna LAF-enheter.

In order to avoid unintended wrong attendance, please read this instruction manual carefully

2. Description

Principle of operation

A confined workspace in which stable horizontal unidirectional flow (laminar flow) provides protection for the product handled against particulate contamination from the surroundings and the operator.

All operations take place through the front. Positive pressure in the work chamber keeps the clean air flowing from the work chamber to the surroundings, avoiding introduction of particle contamination to the work chamber.

3. Technical description

Air flow in the chamber

Through the perforated opening in the top of the unit, air from the surrounding room is drawn into the unit. The air is pre-filtered through a filter with medium efficiency.

Pre-filter

The pre-filter efficiency is 83 % Ashrae 52/76 (grav.) corresponding to EUROVENT 4/5, classification EU 3.

The air is then led to the fan.

Fan

The air is led to the fan in the top of the unit where the air is pressurised. The fan is of a self-compensating type and has only an insignificant drop in supplied air volume by an increase in back pressures. By means of a built-in transformer the fan may be forced to operate at increased power. From the pressure plenum the air passes the main filter.

Main filter

The filter efficiency of the main filter is 99.999 % of particles 0.3 mm (D.O.P. test) EU 14. The clean air flows from the main filter through the work chamber in a horizontal unidirectional flow. The air returns to the suction opening of the unit passing through the surrounding space.

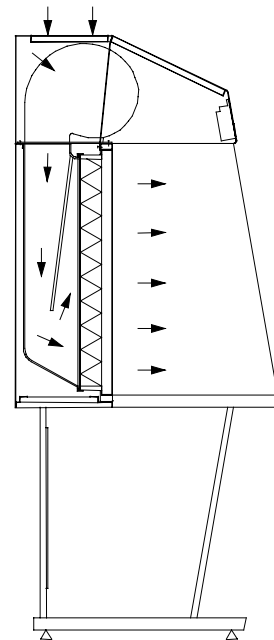


Figure 1. Flow patterns through the top of the HORIZONTAL BASIS/PLUS models.

4. Technical data

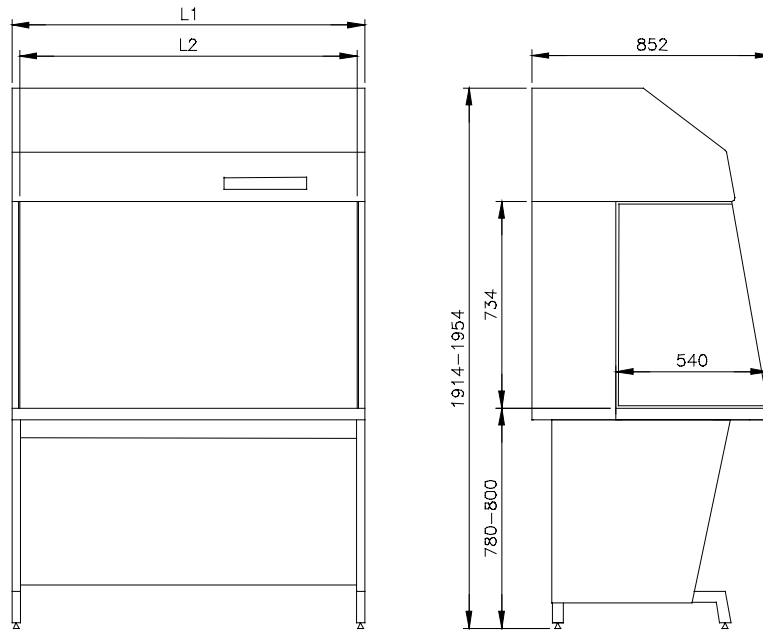


Figure 2: Dimensions of HORIZONTAL BASIS/PLUS models Plus/Basis

	HORIZONTAL BASIS/PLUS 0.9	HORIZONTAL BASIS/PLUS 1.2	HORIZONTAL BASIS/PLUS 1.5	HORIZONTAL BASIS/PLUS 1.8
Length L1	945 mm	1250 mm	1555 mm	1860 mm
Length L2	890 mm	1195 mm	1500 mm	1805 mm
Weight,	105 kg	130 kg	165 kg	190 kg
Quantity of re-circulated air	940 m ³ /h	1260 m ³ /h	1580 m ³ /h	1900 m ³ /h
Dry heat emitted to the surroundings	215 W	282 W	349 W	415 W
Mains voltage	230 V	230 V	230 V	230 V
Mains frequency	50 Hz	50 Hz	50 Hz	50 Hz
Current intensity	3 A	3 A	6 A	6 A
Equipment				
Required mains cut-out	10 A	10 A	10 A	10 A
Sound level according to ISO 11202	57 dB (A)	57 dB (A)	57 dB (A)	57 dB(A)

Table 1.

5. Materials

Subjects	Material	Treatment
Side windows	Tempered glass 5 mm	
Support stand Filter framing	Mild steel plate ST 1203, DIN 16023	60 mm polyester-coating pre-treated to corrosion class 1
Cabinet	Polystyrene PS	
Tabletop	Stainless steel AISI 304	

6. Functional parts

Components on HORIZONTAL BASIS/PLUS Plus/Basis:

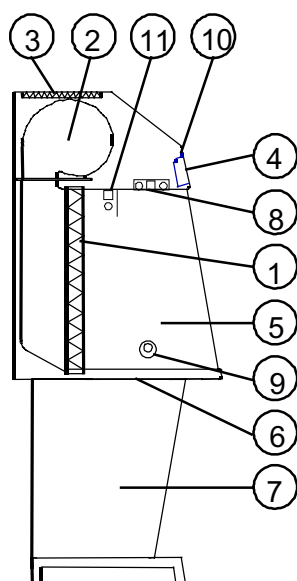


Figure 3.

1. Main filter
 2. Fan
 3. Pre-filter
 4. Control panel
 5. Work chamber
 6. Tabletop
 7. Floor stand (Accessory)
 8. Light
 9. Blanked off holes for valves – 3 pcs.
- Options available to model Plus
10. Electrical outlets
 11. UV-light

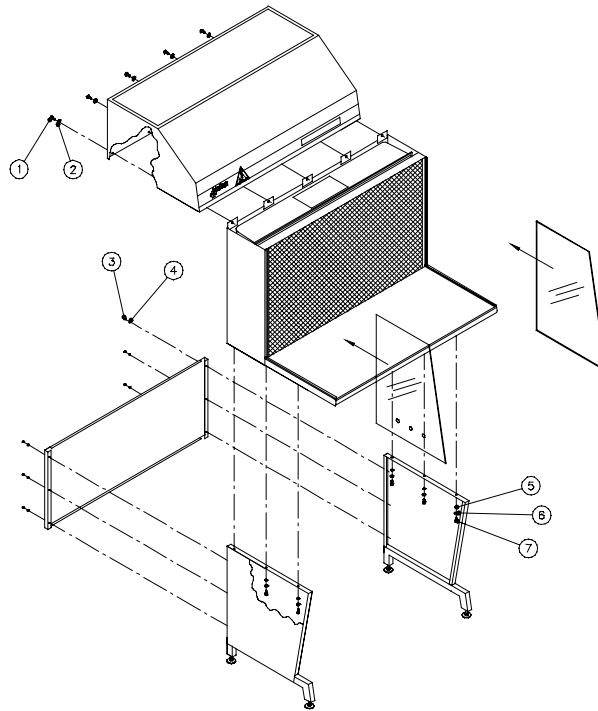
Valves for gasses, vacuum or carbon dioxide (CO₂) are positioned in the left side window. An authorised technician should perform connection.

The fan and the electrical parts e.g. the control panel transformers and light tubes are accessible through the cover placed in the top of the unit.

The light tubes are accessible from the work-chamber.

7. Installation

- Check the dimensions of the unit (see figure 2, page 5) to assure free access to the area of installation.
- The place of installation should be without draught and where passing-by of persons is limited.



Pos.		Number used
1	M8 x 20 mm screws	4 - 7
2	8 mm washer	4 - 7
3	NR8 screws	6
4	4 mm washers	6
5	8 mm tooth lock washer	6
6	8 mm washer	6
7	M8 x 16 mm screws	6

The item may be delivered:

- Unassembled in which case points a) through f) should be carried out or
- Assembled, in which case points e) and f) should be carried out.

7.1. Assembly the unit

1. Open the crate at the front of the unit and take the unit out.
2. Unpack the floor stand and screw the sides and back together.
3. Install the filter housing on top of the support stand and tighten the screws.
4. Place the blower compartment on top of the filter housing, install and tighten the screws delivered with the unit on the back of the unit.
5. Unpack the side windows and slide them into correct position in the aluminium rails.



NOTE

The side windows are made from tempered safety glass and will break into thousands of small pieces if they are damaged.

6. Adjust the levelling feet on the support stand so the tabletop is level.
- Prior to electrical connection it must be checked that the Mains supply corresponds to that stated on the type plate.

8. Operation HORIZONTAL Plus

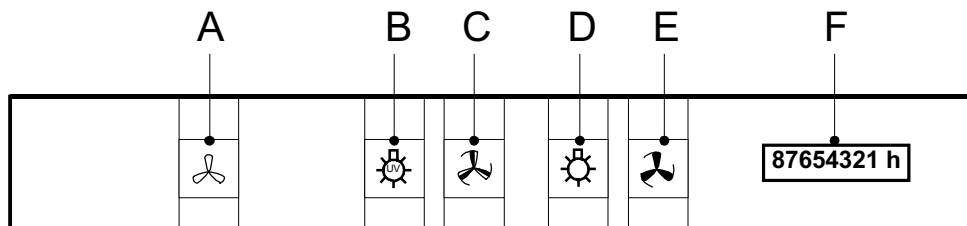


Figure 4. Control panel on HORIZONTAL BASIS/PLUS PLUS.

- A. Alarm signal lamp.
 - B. Push-button for UV-light (UV-light is optional).
 - C. Push-button for changing between normal and reduced speeds and signal light (yellow) for reduced fan speed.
 - D. Push-button with signal light (blue) for switching the light in the work chamber on/off.
 - E. Push-button for start/stop of fan and signal light (green) for normal fan speed.
 - F. Hour counter.
- **Re A:**
Red alarm light for insufficient flow. The velocity in the laminar flow is below the wanted minimum value. The green lamp E turns off when the alarm is on.
 - **Re B:**
Yellow lamp for UV-light, can only be activated when the main light is off. A built-in adjustable timer determines the on time. The pre-set on time is one hour.

- **Re C:**
With the yellow switch it is possible to choose between normal and reduced fan speed. By operation at reduced speed the effectiveness of the product protection is reduced. When a product is handled in the unit it is therefore essential that the unit is operated at normal fan speed. The use of reduced speed minimises the risk of contamination of the work chamber and enables standby running.
- **Re D:**
The work chamber lighting can be switched on and off independently of the state of the fan.
- **Re E:**
The fan is started and stopped by means of the green switch. By operation at normal speed the green signal light is emitting light.
- **Re F:**
The hour counter is in operation whenever the fan is running - both at normal and at reduced speed.

8.1. Operating the lamp for the solenoid valve

Next to the control panel is mounted a yellow switch with lamp for the solenoid valve, which can be switched on and off when the fan is running at normal or reduced speed. The valve will close when the fan is switched off.

The cabinet is equipped with an advanced control unit as a consequence of installing the solenoid valve. This unit will start up the fan and light automatically in case of power failure.

See section 14 the wiring diagram no.: 00065014 showing the principle in the electrical circuits.

9. Operation HORIZONTAL Basis

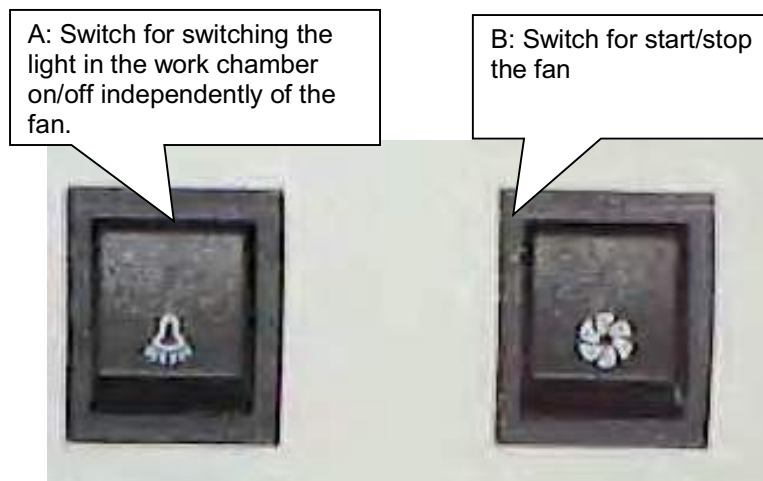


Figure 5: Control switches on HORIZONTAL Basis.

10. Work rules

10.1. Rules applying prior to start of work

- Approximately 15 minutes prior to start of work the fan of the unit is switched on.
- The work chamber is to be carefully cleaned and/or disinfected. Use 70% ethanol or something similar. It is recommended to use special lint-free wipes.
- Objects and remedies must be carefully cleaned and/or disinfected before being brought into the work chamber.
- Necessary tools for use during work must be placed within reach.
- Put on necessary personal clothing for reducing particle emission from the operator (e.g. gloves, masks and general clean room clothing). Special attention should be focused on hands and lower parts of arms, as these are the parts of the person most likely to emit particles near the product.

10.2. Important in order to work under clean conditions

- Never perform any work with the fan at reduced speed.
- Work with tranquil movements.
- Never overload the work chamber.
- Reduce the number of transports into the work chamber.
- Avoid tools with strong emission of heat.
- Do not position the unit at places with direct draught towards the work opening.
- Avoid placing the unit where many persons passes by.
- If UV-light is installed in the same room as HORIZONTAL Plus/Basis it may result in a discoloration of the cabinet. It may however be cleaned by use of a lint-free cloth and alcohol.
- For reliable operation it is important that the airflow conditions are as undisturbed as possible. Therefore, never overload the work chamber - only tools necessary for the actual work should be placed in the work chamber.

10.3. Rules applying while working

- All work in the unit must be performed with tranquil movements. Quick arm movements in the work chamber may cause turbulence, which will draw contaminated air into the work chamber.
- The number of transports into the work chamber must be minimised. Transport of possibly contaminated material may in addition to the mechanical transport also cause formation of airflow, which creates connection between the product and the contaminated surroundings.
- Heat-emitting products or tools in the work chamber may disturb the unidirectional airflow. Around sources with strong emission of heat the air is heated and thus creates an up current

that will cause unstable conditions in the unidirectional flow. The protective effect of the unit may then be reduced.

- It is preferable to use hand or foot-operated Bunsen burners.
- Draught towards the front of the unit can destroy the protective effect of the unidirectional flow.
- The passing-by of persons in front of the unit should be minimised. A person passing in front of the work opening will create a pressure wave. Passing-by of a person might therefore cause air from the surrounding space to be pressed into the work chamber. The effect is intensified the faster the person is moving and the closer to the opening the passing takes place.
- Don't place any objects close to the side windows, as this will create turbulence, which might reduce product protection.

11. Maintenance

11.1. Recommended maintenance

- **Daily**

The work area is cleaned. Be extremely careful when cleaning the work surface.


- **Weekly**

Wipe the exterior of the unit with alcohol or a mild detergent of household type.

- **Regularly**


Reliable operation of the unit is based on the following conditions:

1. Correct air velocities.
2. Efficiency of installed HEPA-filter.

	<p>NOTE A qualified technician should test these parameters after approximately 2.500 hours of operation or at least once a year. On the right hand side of the unit there is a label stating the time for the next service check-up.</p>
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Testing of air velocities in the horizontal unidirectional flow by means of an anemometer (see the enclosed test report).

Testing of the efficiency of the installed HEPA-filter by means of a particle counter or a photometer the efficiency of the filter is verified (see the enclosed test report).

	<p>NOTE Contact your local supplier for further information on test procedures.</p>
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11.2. Repair

Control panel or switches and electrical parts e.g. transformer and main fuses are positioned behind the pre-filter in the top of the unit. When changing these parts, remove the pre-filter, unscrew the perforated cover, replace the broken parts, and remount the cover and the pre-filter.

11.3. Change of pre-filter

Change of pre-filter should be made whenever the surface of the pre-filter turns grey.

- Remove the pre-filter and replace it with a new pre-filter.
- Never try to clean the pre-filter as it is of a disposable type.

11.4. Change of main filter

- The upper part (the blower compartment), containing the fan has to be removed from the unit. Unscrew the bolts at the back holding the blower compartment. Beware the upper part is heavy. When the bolts are removed the upper part must be supported and lifted from the unit.
- Unscrew the bolts underneath the tabletop holding the bottom part of the filter.
- Unscrew the corresponding bolts holding the upper part of the filter. These bolts will appear when the blower compartment has been removed.
- Pull out the black pressure plenum.
- Replace the HEPA-filter. (Make sure that the lower filter fasteners are engaged with the bolts before inserting the new filter).
- Reassemble the above described parts in reverse order.

11.5. Test

- Correct air velocities.
- Efficiency of installed HEPA-filter.

12. Trouble shooting



NOTE

If none of the following attempts to set the bench right will bring the bench to operate satisfactorily, a qualified technician should be called.

Problem:	What to do
The unit will not start and the light will not turn on.	<ul style="list-style-type: none"> • Check that the unit is connected to the wall socket. Is it switched on? If necessary, try with other equipment to see whether there is normal voltage on the wall socket. • The unit is equipped with a fuse cut-out placed together with the electrical part installed underneath the perforated cover on top of the unit. Try changing the fuse.
The unit starts, but the light will not turn on.	<ul style="list-style-type: none"> • Change starter and/or light tube.

13. Spare parts

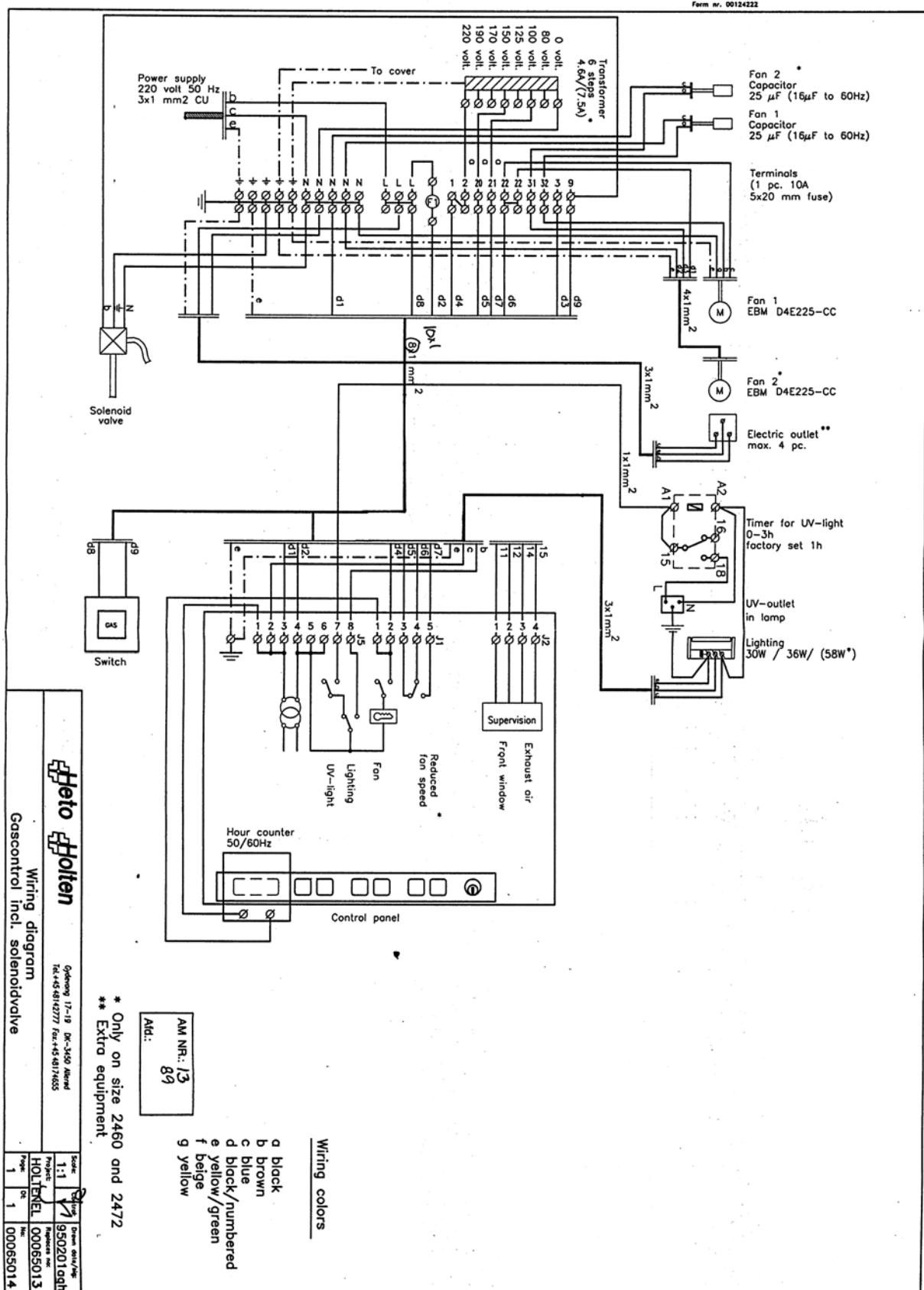
Spare parts for HORIZONTAL 0.9 Plus/Basis				
Description	Amount	Mark	Specifications	HOLTEN no
Pre-filter	1 pc	Filtrair	VNF 290 385x883	95400214
Main filter	1 pc	Camfil	MIDILAR MDA-2GW 762x915x66-01 PU	95200059
Light tubes	2 pcs	Phillips	TLD. 18/83	00844029
Starter	2 pcs	Osram	ST 111,220-240 V-4-80W	00844053
Fuse cut-out	2 pcs		5*20 mm 10 AT	00841274

Spare parts for HORIZONTAL 1.2 Plus/Basis				
Description	Amount	Mark	Specifications	HOLTEN no
Pre-filter	1 pc	Filtrair	VNF 290 385x1191	95400215
Main filter	1 pc	Camfil	MIDILAR MDA-2GW 762x1220x66-01 PU	95200510
Light tube	2 pcs	Phillips	TLD. 18/83	00844029
Starter	2 pcs	Osram	ST 111, 220-240 V-4-80W	00844053
Fuse cut-out	2 pcs		5*20 mm 10 AT	00841274

Spare Parts for HORIZONTAL 1.5 Plus/Basis				
Description	Amount	Mark	Specifications	HOLTEN no
Pre-filter	1 pc	Filtrair	VNF 290 385x1492	95400216
Main filter	1 pc	Camfil	MIDILAR MDA-2GW 762x1525x66-01 PU	95200511
Light tubes	2 pcs	Phillips	TLD. 36/83	00844027
Starter	2 pcs	Osram	ST 111,220-240 V-4-80W	00844053
Fuse cut-out	2 pcs		5*20 mm 10 AT	00841274

Spare parts for HORIZONTAL 1.8 Plus/Basis				
Description	Amount	Mark	Specifications	HOLTEN no
Pre-filter	1 pc	Filtrair	VNF 290 385x1800	95400217
Main filter	1 pc	Camfil	MIDILAR MDA-2GW 762x1830x66-01 PU	95200512
Light tube	2 pcs	Phillips	TLD. 36/83	00844027
Starter	2 pcs	Osram	ST 111, 220-240 V-4-80W	00844053
Fuse cut-out	2 pcs		5*20 mm 10 AT	00841274

14. Wiring diagram



We:

Jouan Nordic A/S
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Denmark

declare under our sole responsibility that the product

Model: **Holten Horizontal Basis/Plus**

to which this declaration relates is in conformity with the following standard(s) or other normative document(s):

EN 292-1:1991 - Safety of machinery
Basic concepts - General principles for design.
(Basic terminology, methodology)

EN 292-2:1991 - Safety of machinery
Basic concepts - General principles for design.
(Technical principles and specifications)

EN 60204-1:1999 - Safety of machinery - Electrical equipment of machines.
(General requirements)

EN 61010-1: 2001 - Safety requirement for electrical equipment for measurement, control and laboratory use.
(General requirements)

EN 61000-6-3:2001 and **EN 61000-6-1:2001** - Electromagnetic compatibility.
(Generic emission / immunity standard - Residential, commercial and light industry).

EN 1050:1996 - Safety of machinery.
(Principles for risk assessment).

following the provisions of:

Directive **98/37/EEC** Machinery

Directive **73/23/EEC** Low voltage

Directive **89/336/EEC** Electromagnetic compatibility