



GEOVENT

INSTRUCTION MANUAL



HIGH VACUUM UNIT

HVU-Lite - 3 and 5

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1.0 General safety precautions

IMPORTANT – Please study all the instructions before mounting and commissioning.

Please keep these instructions in a safe place and instruct all users in the function and operation of the product.

Exchange of filter/maintenance should only be implemented after studying section 4 thoroughly.

Avoid the dismantling of any factory-mounted parts, since it impedes the commissioning of the equipment.

All electrical installations must be carried out by an authorised electrician.

1.1 Danger

The HVU-Lite is not to be used for the extraction of explosive media. Use HVU-Lite ATEX version if this is your need.

Dismantling parts on the HVU whilst in operation is potentially lethal.

Always disconnect the HVU from the mains, when mounting parts or servicing the Unit.

1.2 Area of application

The Geovent High Vacuum Unit - HVU - (of more than 20 kPa) is suitable for vacuum various dust application, from car body work to pharmaceutical. The Unit is equipped with a two-step filter cyclone with an automatic/pneumatic cleaning system and has a filtration level of 99.9%.

The Unit may be used for the extraction of grinding dust from hand-held rotor grinders, stationary belt sanders and bench grinders, brake dust from cars and trucks as well as ordinary workspace cleaning, etc.

1.3 Technical data

Model	Output [kW]	Power consumption 100% load	Max. air flow [m³/h]
HVU-Lite 30	3	6,8A	350
HVU-Lite 55	5,5	11,6A	500

Model	Max. Vacuum [kPa]	Filter area [m²]	Filtration effect according to BIA-test
HVU-Lite 30	23	7,5	99,9%
HVU-Lite 55	21	7,5	99,9%

Model	Sound pressure level according to ISO-3746-1979	Compressed air tank w/1" connection	Collection bucket
HVU-Lite 30	72 dBA	4 Liters	18 Liters
HVU-Lite 55	74 dBA	4 Liter s	18 Liters

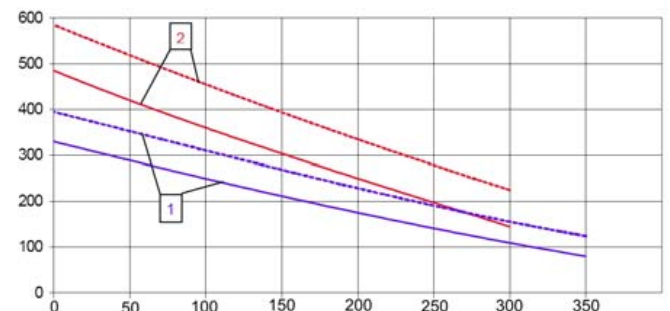
Model	Cabinet + cyclone ø700	Corrosion class	Weight
HVU-Lite 30	Painted	II	120 kg
HVU-Lite 55	Painted	II	140 kg

Temperature extracted air Max 150°C
Temperature surroundings Max -10°C - +50°C

Relative humidity must be <90%

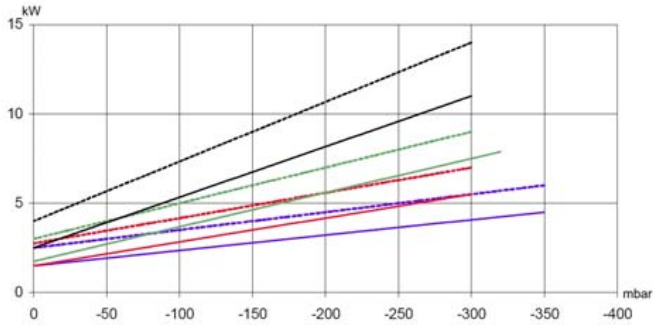
The sound level depends on several factors; For example where the High Vacuum Unit is placed (indoors/outdoors), the size of the room, the temperature of the surroundings, the acoustics and also the connection (hose><pipe) of the Unit has an effect on the sound level.

Graphs of pressure drop for the High Vacuum Unit



Blue line indicates 3 kW - Red line indicates 5.5kW
 Full print line indicates 50Hz - Stiplet 60Hz

Power curve for High vacuum unit



Blue line indicates 3 kW - Red line indicates 5.5kW
Full print line indicates 50Hz - Stipplet 60Hz

1.4 Construction



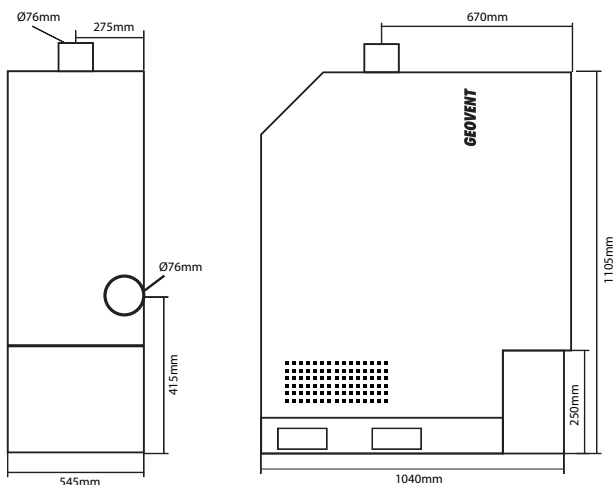
Shield: Epoxy painted steel plate.

Filter medium: 99.9% filtration efficiency. Expected life for normal operation: 4,000-8,000 hours.

Engine/vacuum pump: IP-54 standard engine with bypass fan in cast aluminium. Expected life for normal operation: 20,000 hours.

Automatics: Customize control panel placed inside.

Dimensions:



2.0 Installation

The HVU should be installed indoors, for example in an engineering room with good ventilation in order to secure perfect operation. For outdoor installation, always place in an open shed as a minimum. THE SURFACE TREATMENT OF THE HVU IS NOT SUITABLE FOR OUTDOOR APPLICATION, SINCE THE RISK OF WATER PENETRATING THE CYCLONE IS INCREASED AND FURTHERMORE, THE ELECTRONICS COMPONENTS MAY NOT FUNCTION IN FROSTY WEATHER.

The HVU Lite is supplied in complete/assembled condition and it has been pre-programmed, ready for connection to the mains.

Before mounting, please make sure that the optimum installation area is selected. Should it be placed indoors or outdoors? Is there space enough for the satisfactory installation and service of the HVU? What about optimum connection possibilities for piping and automatics? If at all possible, please avoid bends just before the inlet and after the outlet, since otherwise it could reduce the capacity of the HVU.

For outdoor mounting, please take the following aspects into consideration: Any noise nuisance for the neighbours, defects due to frost and keep the engine out of heavy showers. Therefore, we recommend building a shed around the HVU in order to protect it from the weather and to shield against noise.

The following installation should only be carried out by a trained fitter.

Procedure:

1. The HVU Lite is placed on a solid foundation (e.g. on a concrete floor), where there is no danger of vibration transmission. Also, please ensure that the filter can be exchanged (i.e. as a minimum a free height of 800 mm is required).

2. Connect the piping to the HVU Lite. On the inlet side, the pipe may be fixed by means of a spring lock system. Remember to seal the connection with filler and/or tape!

3. In order to secure free mixing, the outlet should be taken two metres up above the roof top (up in the air) with an air velocity of 8 m/s as a minimum.

4. The whole plant/piping system should always be thoroughly checked for leaks, which should be sealed. The plant may not be taken into operation for 24 hours.

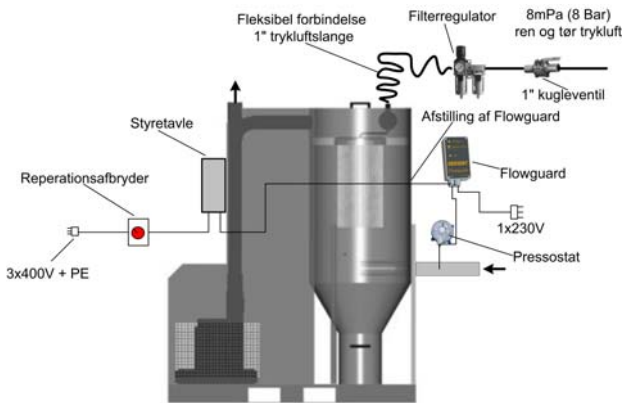
Connection of the fan to the mains:

5. The connection of the electric components of the HVU should only be carried out by an authorised electrician.

6. For connection options, please refer to the diagram on page 6.

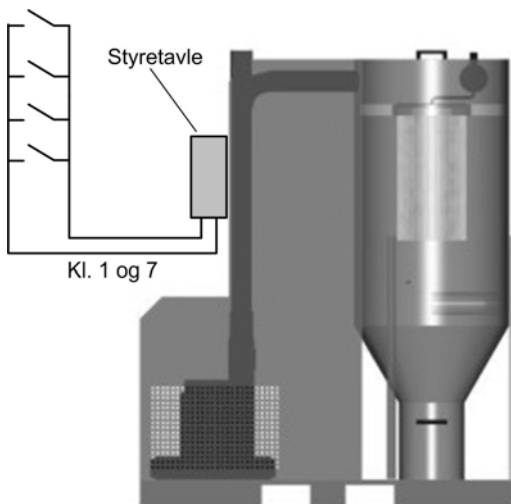
2.1 Mounting of optional equipment

Mounting of a repair switch



A repair switch must be connected in order to comply with the EN 60 204-1 standard, according to which a manual switch must be fitted. Typically, the switch will be placed 2 – 3 metres from the Unit and it must be clearly visible.

Mounting of control panel, with build in frequency inverter and PID regulation



Please see separate manuals for specific details.

2.2 Trial run – exact adjustment

When the installation has been completed, please check whether there is any vibration or noise nuisance from the HVU.

Please control that the complete plant is totally tight. If any creaking noises are emitted, please locate the leakage and seal it with filler.

Furthermore, we recommend checking whether the HVU supplies the volume of air, for which the equipment has been dimensioned. Measure the air volume and ensure that it does not exceed the amperage of the engine.

3.0 Application – user instruction

The HVU should not be in operation for longer periods of time (more than 15-30 min.) without opening the valves. There is a built in vacuum safety valve, which should ensure the motor from meltdown, but we don't recommend testing it for longer periods of time, in case the unit is placed in a warm location.

4.0 Maintenance

At least once annually, the whole point suction plant should be overhauled by an authorised serviceman.

Periodic maintenance:

- All electric parts should be checked annually.
- In principle, the vacuum pump/engine is maintenance-free due to the factory-mounted completely closed special ball bearings, which do not require any maintenance. Exchange of worn bearings should only be carried out by an electro-company.
- The bin should be changed when ever it is full. The bin sensor should give an alarm signal to the control panel. Once annually this procedure should be tested for functionality.
- We recommend that the cleaning cycle is activated at least once a day, in order to ensure longer living time on the filters.

4.1 Exchange of filter medium

The collection bucket should be emptied when approx. two thirds of it is full, since otherwise it may further load the filter medium. The filter medium should be exchanged after approx. 4,000-8,000 hours of operation or max. 4 years. Partly, this depends on the load on the filter, for example whether it has been used in connection with welding or grinding, etc.

Procedure:

1. Disconnect the Unit on the repair switch. Please ensure that the switch cannot be activated during the service operation.
2. Disconnect/dismantle the compressed air connection.
3. Before dismantling the dusty filter, it is important that the service technician is equipped with the necessary personal safety outfit, i.e. breathing mask and gloves, which comply with the rules of the Working Environment Service regarding work with polluted dust.
4. Subsequently, the collection bucket is dismantled by means of the fixed spring locks. Now, with care the bucket may be taken out. The contents of the bucket are now to be destroyed in an environmentally sound manner in accordance with the current rules.
5. The bucket is returned and fixed under the cyclone.

6. The top/lid of the cyclone is dismantled by uncoupling the spring lock, and then the lid with the compressed air tank is removed. Make sure first to disconnect the supply of compressed air and the power supply and not to damage the compressed air tank, when it is put aside.

7. Subsequently, with a 17 mm box spanner remove the three M10 bolts, which attach the filter medium to the Unit.

8. The polluted filter medium is carefully lifted up and placed in a large rubbish bag, which is then properly sealed up.

9. The new filter medium is inserted and fixed to the Unit with three 10 mm bolts.

10. The top/lid is carefully returned and fixed with a spring lock. (Remember to connect to power and compressed air again!).

11. Subsequently, the polluted filter medium is sent to destruction at the nearest waste disposal plant.

4.2 Trouble shooting

In case of problems with reduced pressure or volume of air, the points mentioned below may be followed when attempts are made to solve the problems:

The volume of air or the pressure has fallen to below the indicated volume/pressure.

- Wrong direction of rotation of the fan wheel. May be caused by wrong electrical installation. Please double check the direction of rotation. Change two phases.
- The channel system is not tight.
- Poor inlet/outlet options close to the vacuum pump may reduce the capacity (e.g. 90° bend just before the inlet).
- Damaged wheel.
- The rate of rotation has been set to a lower level.
- If the temperature deviates substantially from the laboratory measurements, where the temperature was 20°C with an atmospheric pressure of 101.4 kPa.
- The dampers have not been properly adjusted.
- The channel or the Unit has been blocked by a screwdriver, for instance.

Vibrations and noise.

- The foundation is not level/stable.
- Elements coming from outside have penetrated the Unit/channel system.
- Damaged wheel or engine.
- The wheel is loose.
- The wheel is running in the wrong direction.
- Loose bolts or screws.

The engine is overloaded.

- The cabling to the engine is wrong.
- Defective engine – please contact the distributor!

5.0 Liability

Warranty

Geovent A/S grants a warranty for products, which are defective; when it can be proved that the defects are due to poor manufacture or materials on the part of Geovent. The warranty comprises remedial action (reparation or exchange) until one year after date of shipment. No claims can be made against Geovent A/S in relation to loss of earnings or consequential loss as a result of defects on products from Geovent.

Wear parts like fan wheels etc. are not included in the warranty.

User liability

In order for Geovent to be capable of granting the declared warranty, the user/fitter must follow this Instruction Manual in all respects.

Under no circumstances may the products be changed in any way, without prior written agreement with Geovent A/S.

6.0 Declaration of conformity

Hereby declares that:

The product: High Vacuum Unit
Models: HVU Lite

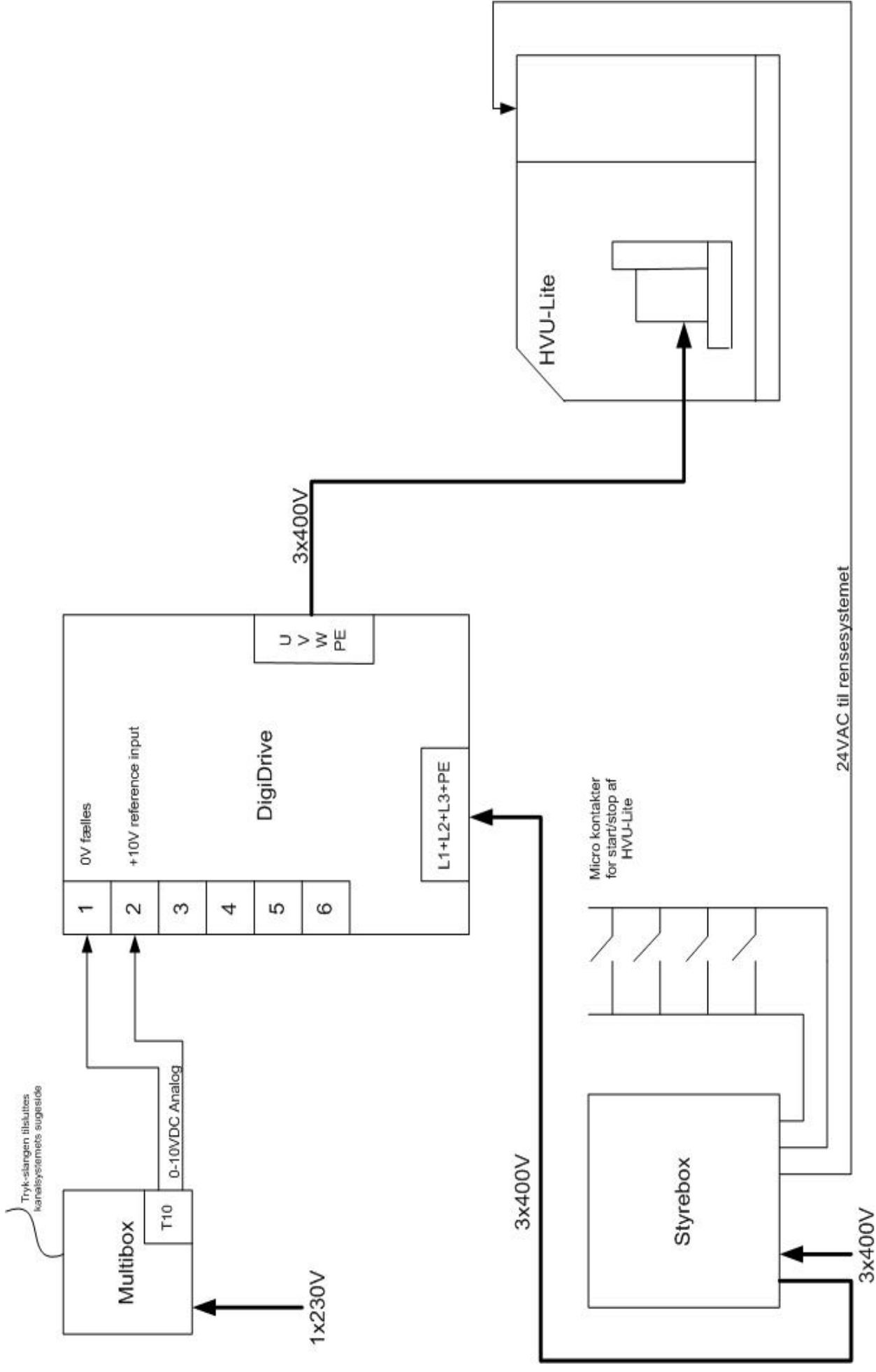
has been manufactured in compliance with the directions of the Directive Council of 14 June 1989 in common approximation to the legislation of the member states regarding machine safety (89/392/EEC amended by the directive 91/368/EEC) with special reference to appendix 1 in the Directive regarding basic health and safety requirements in connection with the construction and manufacturing of machinery.

Date: 13/12-17

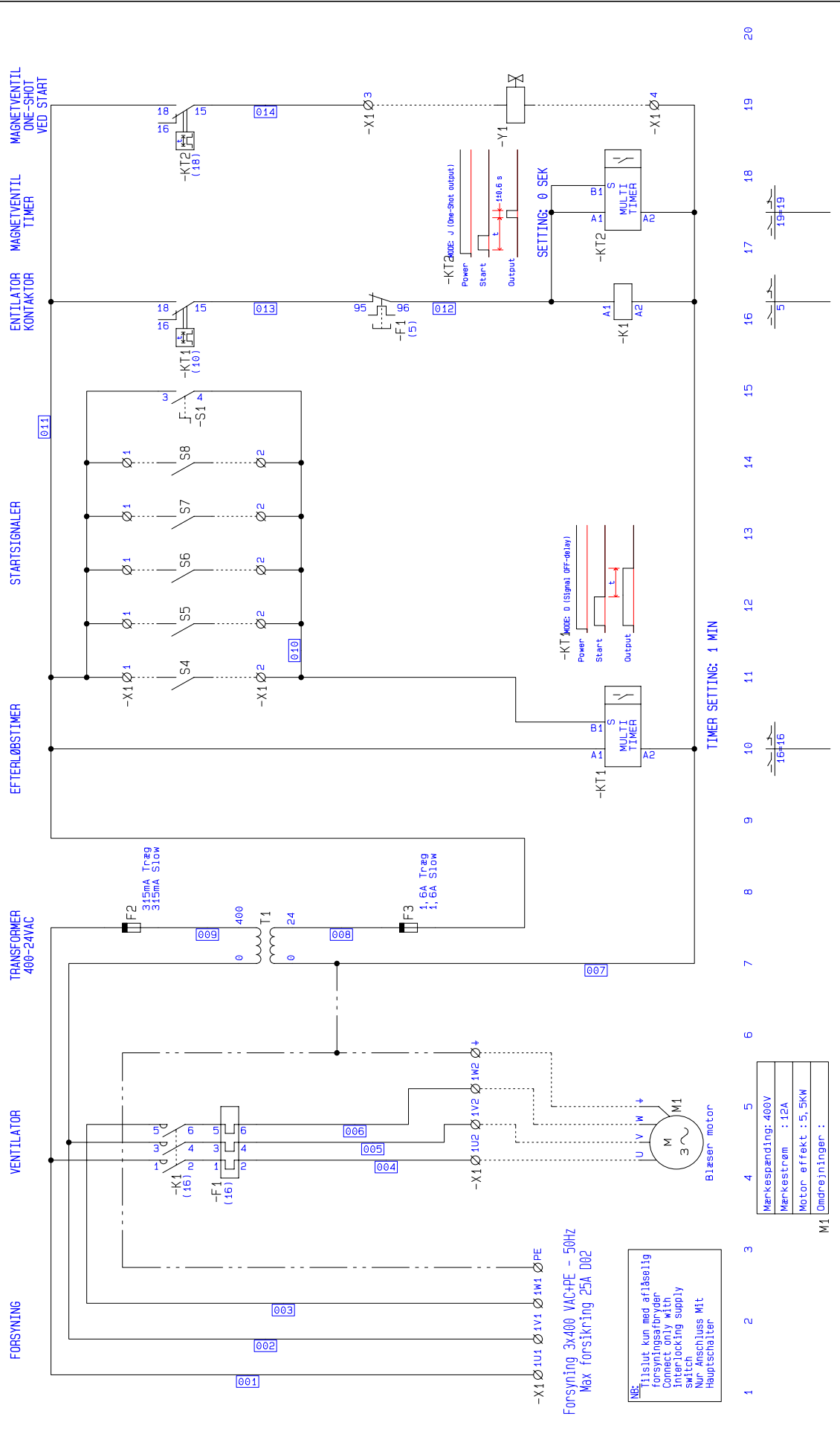
Position: Managing Director
Name: Thomas Molsen

Signature:





Styring - Hovedstrøm



5,5 KW Motor starter, med mulighed for extern start/stop og efterløbstid

Revisionsnr : V02-01

Konstruktør : KB

Oprettelsesdato : 10-12-02

Revisionsdato : 29-03-06

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