GEOVENT

INSTRUCTION MANUAL

Wood dust extraction
WE-55

Version 1.0 05.01.2023

www.geovent.com

Contents

1 Introduction

The manual is intended for the buyer and user of WE-5, 5 / D regarding installation, start-up and operational use. Installation, start-up and operational use require familiarity with the contents of the user manual. We reserve the right to revise the unit and manual to improve functions and safety. In the event of an error - check the manual, possibly clarify with the supplier/manufacturer.

The construction is based on current technology and health/safety in accordance with

• **2006/42/EC Machinery Directive** of the European Parliament and of the Council of 17 May, 2006 on machinery – amending the 95/16/EC (recast)
/Journal of Laws EC L157 of 09.06.2006, page 24/

• **2014/35/EC Directive** of the European Parliament and of the Council of 26 February, 2014
on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.
/Journal of Laws EC L96 of 29.03.2014/

The appliance meets the requirements included in:

• **2009/125/EC (ErP) Directive** of the European Parliament and of the Council of October 21th, 2009 establishing a framework for the setting of ecodesign requirements for energy-related products
/Journal of Laws L285 of 31.10.2009/

• **327/2011 (EU) Commission Regulation** of March 30th, 2011 on implementing the **2009/125/EC Directive** of the European Parliament and of the Council with regard to ecodesign requirements for fans driven by motors with an electric input power between 125W and 500 kW
/Journal of Laws L90 of 06.04.2011/

The device has been constructed and produced on the basis of following harmonized standards:

• **PN-EN ISO 12100:2012**
"Safety of machinery. Basic concepts, general principles for design. Risk assessment and risk reduction".

• **PN-EN 60204-1:2010**
"Safety of machinery. – Electrical equipment of machines.
Part 1: General requirements".

• **PN-EN ISO 13857:2010**
"Safety of machinery. Safe distances to prevent hazard zones being reached by upper and lower limbs".

• **PN-EN 60529:2003**
"Degrees of protection provided by enclosures (IP Code)"

• **PN-EN 61439:2010**
"Low-voltage switchgear and controlgear assemblies
Part 1: General resolutions".

• **PN-EN 60335-1:2012**
"Safety of electrical appliances for household and similar use.
Part 1: General requirements".

WARNING: The fan and vibration mechanism included in the unit may pose a risk:
- Installation, start-up or service must be carried out by qualified personnel
- The device must be used in accordance with the purpose for which it was manufactured.

2 Purpose and use

WE-5.5 is designed to remove/filter hazardous dust that occurs during the processing of wood/wood shavings. The chip extractor filters dust from processing machines, and minimizes suspended dust and protects personnel and students. The device must protect the internal/external environment. WE-5, 5 / D is designed for working environment with dry dust. WE 5.5 is not intended for environments where dry dust occurs together with potential sources of ignition. The WE 5.5 is equipped with a relief valve at the rear. WE-5, 5 / D is equipped with a filter cleaning system. The filter is cleaned with a vibration mechanism that starts automatically when the unit is stopped. The unit is designed for extraction and filtration of health-hazardous dry dust that occurs in workplaces, dust rooms, workshops, etc.

3 Manufacturer's reservation

A. The supplier/manufacturer does not assume responsibility for consequences resulting from incorrect use.
B. It is not permitted to modify the electrical construction, without agreement
C. Any structural changes are not permitted

D. The device is protected against mechanical damage
E. Waste bags and filters are protected and inspected regularly
F. The device is not used to filter air containing:
- Viscous or moist substances that can be deposited on the device's surface
- Dust particles below 10 micrometres
- Explosive dusts and gases
- Aggressive dusts and gases

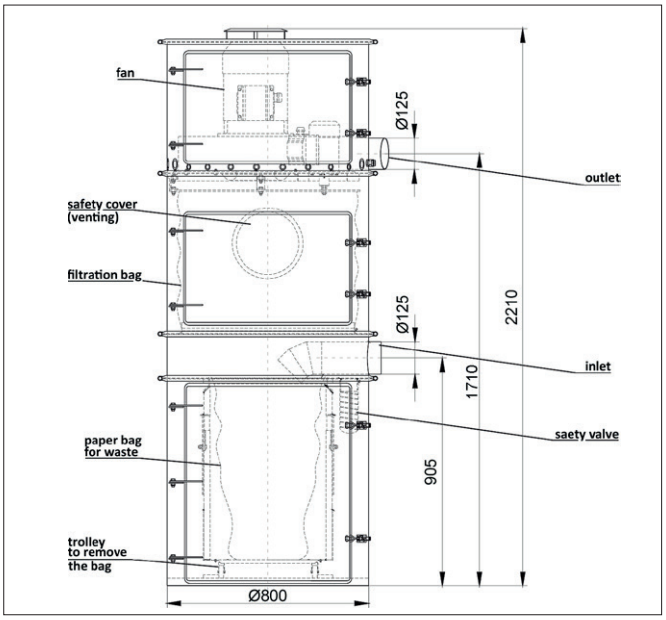
G. The supplier/manufacturer is not responsible for damages that occur due to incorrect use
F. The supplier/manufacturer is not responsible for the wrong reason for using non-original spare parts..

4. Technical data

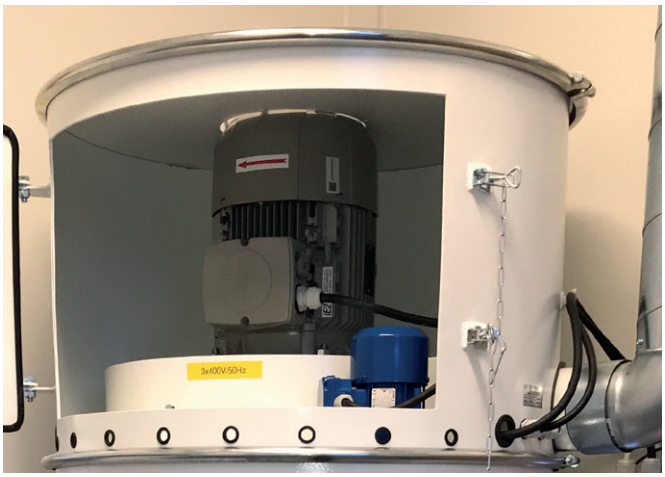
5 Unit and function

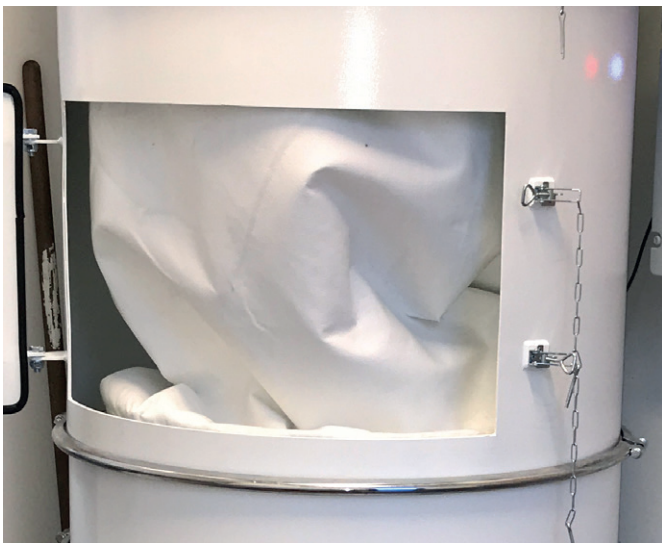
Info	Enhet	Verdi
Supply/voltage (2 possibilities)	V	3x400 eller 3x230 V
Nominal current for 3x230 V	A	18,5
Nominal current for 3x400 V	A	10,9
Engine power	kW	5,5
Recommended fuse	A	25
IP Degree		55
Inlet and outlet diameter	mm	2xØ125
Sound level (projection without sound trap)	dB(A)	85 (5m) og 89 (1 m)
Sound level (impact with sound trap)	dB(A)	69 (5m) og 76 (1 m)
Maximum air volume	m³/h	1890
Maximum available pressure	Pa	8000
Aggregate weight	kg	280

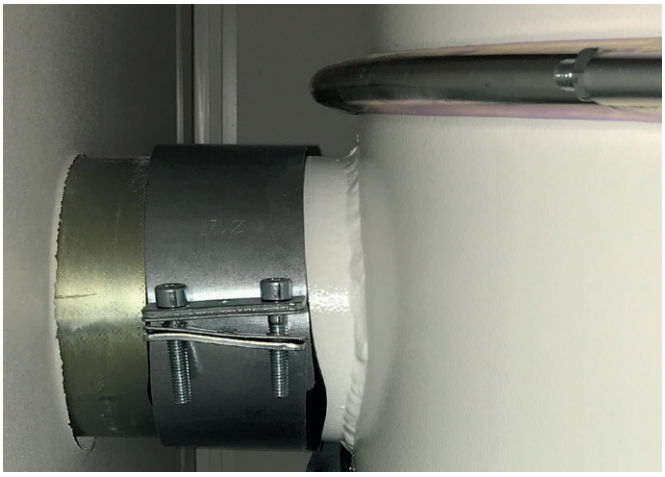
Important principles - read before installation and use



The unit consists of four modules which are connected together with tension bands:
Upper part (See photo below)
The top module houses the fan and shaker motor, as well as the discharge nozzle. The fan is activated manually (pos. "MAN" on the electrical cabinet) or by operating flap valves and dampers with a microswitch (pos. "Remote" on the electrical cabinet). After use, the shaking motor is activated automatically and the dust falls from the filter and into the waste bag. Immediately after the discharge nozzle (ø125 mm) you should increase the dimension to Ø200/250 mm and install a sound trap.





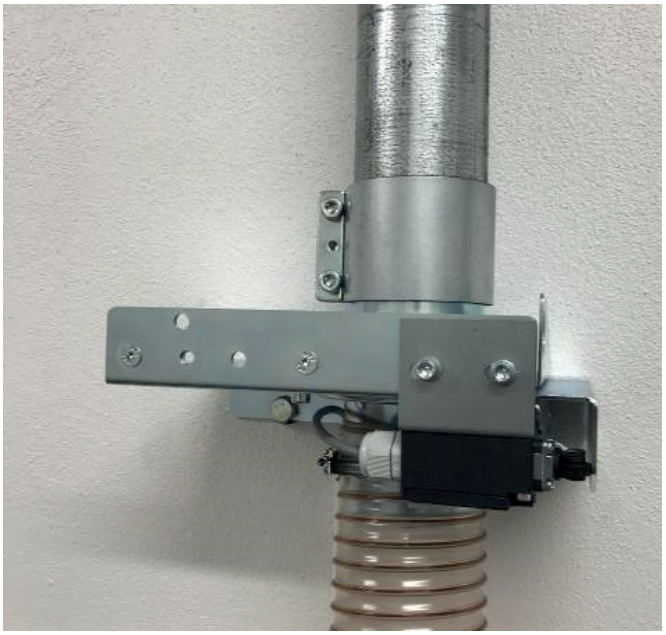


Second top part (picture in the middle above)
Here is the suspension ring for filter and filter. The top two modules cannot be rotated relative to each other.

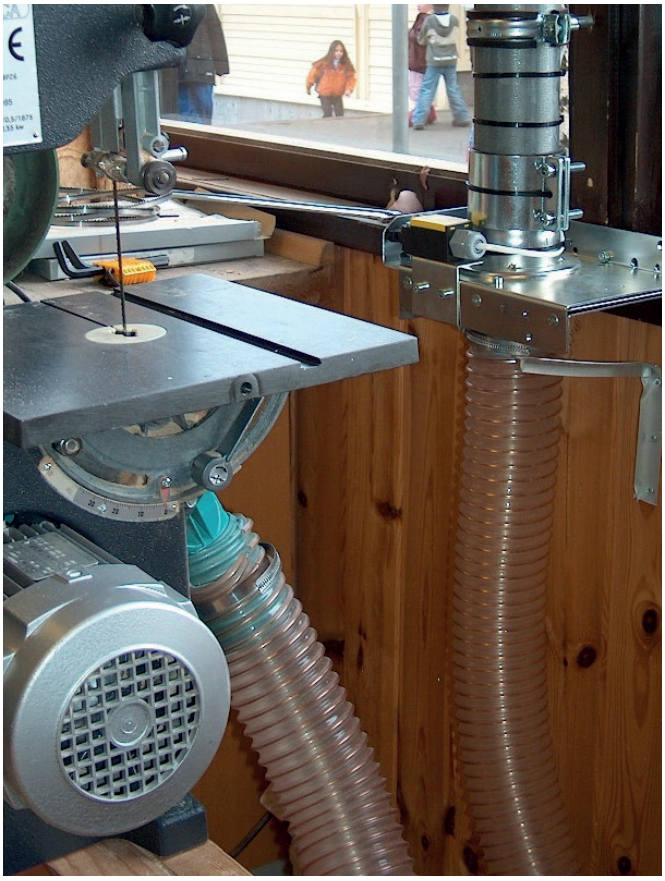
Inlet module (picture on the right above)
This is rotatable, and the inlet can be rotated so that the inlet pipe is placed appropriately. This module also houses the adjustable and capacitive sensor (see image below). This sensor is placed and adjusted (adjustment screw on top) if the sensitivity is too great.

Bottom module
Here are the waste bag and trolley (on the left below). Check that the door is properly closed, please tighten the locks (on the right below). False air can contribute to a pressure difference and that the bag is pushed up in front of the capacitive sensor (sensor so that an alarm (steady red light) is triggered. practice and environmental toxins fall into the waste bag in the lower part. The unit is controlled by electrical panel ZE-WE-5, 5. The panel in a convenient place near the unit.

We recommend the use of high-vacuum pipes and damper/flap valves with microswitches.
We recommend using high vacuum tubes and parts to avoid leaks. The unit is a high-pressure unit within the field of chip extraction, and spiro pipes are not acceptable solutions. Long seam pipes with tension bands can also lead to leaks. We also recommend that dampers for machine connections, and flap valves for vacuuming, be installed with microswitches for start and stop. In this way, it is ensured that the damper is closed after use, and that the unit is only in operation when required.



Machines are equipped with various connection pieces, and adaptation to the processing machine must be expected.



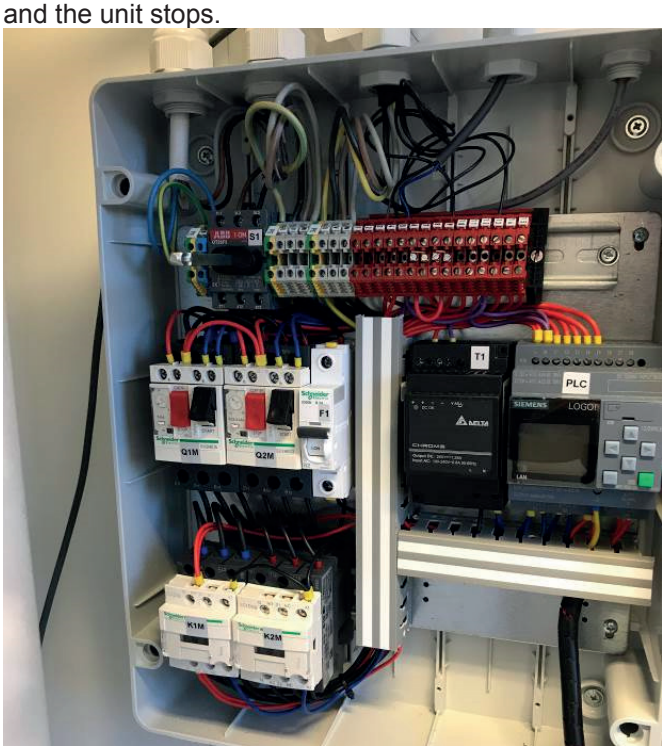
Preferably, place the damper at an easy operating height, on the same side as the “on and off switch” of the machine.

Start and stop from valves and dampers

We recommend that you use a two-conductor cable, lampet type cable (brown and blue, double insulated) 2 x 0.75 mm2. On the e-panel, the conductors are connected to terminal blocks 9 and 13 (top right). Units from after 2018, check the form for terminal block for start/ stop from dampers and flap valves (7 and 11). In the event of a short circuit, the unit must start.

6 Installation and start

The WE-5,5 extractor is designed for use in a closed room. Place the unit upon a solid, flat foundation (e.g. a concrete floor) and anchor it. It should preferably be placed indoors, if the user chooses to place it outdoors, a small shed should be built around the unit to protect it from the elements. And it should be kept frost-free. It is important to have access to air for air circulation and cooling, and that the user has enough space to change the filter and waste bag. Woodworking machines are connected with a high-vacuum pipe, damper and flexible hose to the machine’s outlet. Flexible hose is connected to the pipe network with a sliding damper. When the sliding damper is pulled out, a signal is given from the corresponding microswitch on the damper to the control unit, and the unit starts. When you have finished using the woodworking machine, the damper is pushed back and the unit stops.



The electrical panel should be installed in an easily accessible and convenient place for the user and it must be connected 3 x 230 or 3 x 400V, 50 Hz.
A silencer (900/1200 mm – Ø200/250) and a spiro for the outdoors are recommended on the return (Ø200/250 mm recommended). Electrical work must be carried out by certified personnel in accordance with current regulations.

See also chapter 5.

Before starting, check the following:
- Correct supply voltage and grounding
- Correct connection of phases on the motor, correctly set motor protection, correctly secured main course
- Check the physical direction of rotation of the fan. If the impeller has the wrong direction of rotation, the suction is poor.
- Check motor protection settings, are these set slightly above the rated current on motors?
- Check that all microswitches are correctly connected on the panel
- Correct attachment of the bag filter and the waste bag
- Doors closed and tightened ("false" air can cause the bag to be sucked up and sound the alarm)
- KCapacitive sensor must be adjusted correctly. The adjustment screw for sensitivity is under the black cover screw.
- Test the device by setting the black switch to the "Local" position
- Filter cleaner takes approx. 20 seconds after stopping
- Put the black switch in "Remote" and test start and stop from dampers/valves/micro switches

7 Use, application and alarms

Connection of the main switch, the unit in stand-by
Turn the red switch to the "ON" position
- The yellow lamp (-H1) lights up.

Start of fan/extraction - test run
Turn the black control switch to the "Local" position to start the test. The fan starts, indicated by a lit white signal lamp. Then set the black switch to the "Remote" position.

Operation/remote control of the unit
For automatic operation of the unit, set the red switch to "On" and the black switch to "Remote". The unit must now be started and stopped when sliding dampers and flap valves are used. Micro switches must be connected.

Disconnection of Aggregate:
To stop the unit, set the red switch (-S2) to position "OFF" and then
turn the switch (-S1) to the "OFF" position.

Full-bag alarm (steady red light):
When the waste bag is full, or the capacitive sensor detects something in front (for example a waste bag), the red lamp (- H3) "ALARM" lights up. The fan is stopped, the bag must be emptied or the obstruction must be removed, the alarm can be reset and the system starts again.
For emptying the bag; Open the bottom door, pull out the trolley with the waste bag to change the bag.
Clean any capacitive sensor.
Replace the waste bag with a new one, place the trolley into the unit, lift the bag into place with the weight arms of the trolley, close the door properly.

NB! Clean properly if there are chips around the door/gasket. False air will cause the bag to be sucked up and trigger the alarm again!

Under normal conditions, the shaking motor starts and shakes the filter for approx. 20 seconds each time the unit is stopped. The shaking removes fine dust from the bag filter and gives a longer filter life.

Error - motor protection tripped (flashing red light)
In the event of a fault on the motor protection switch (-Q1) or (-Q2), the lamp (-H3) "ALARM" flashes. The fan then switches off automatically. Check the switch and electrical connections, then start the fan by pressing the (-S3) "RESET" button.

Examples of incorrect use and incorrect operating areas:
a. Dust and gases beyond temperatures -20°C to 40°C.
b. Extraction of explosive dust and gases
c. Extraction of aggressive, damp or sticky media
d. Extraction of gas, smoke or dust below 10 microns
e. Extraction from hot processes (metal grinding)

Possible consequences of incorrect use:
- Clogged filters
- Damage to bearings and axles
- Corrosion damage
- Imbalance on fan, impeller
- Vibrations and damage to the shaker motor
- Deformations and fatigue fractures
- Damage due to friction
- Sparks and ignition sources can cause ignition

8 Problem solving

Always switch off the power before working on the unit, motor, electrics, impeller etc.

Extraction disappears while the fan is running.
Clogging in the suction channel, at a branch etc. Must be opened and cleaned

Fan stops
Check motor, impeller, supply, fuse. Contact an electrician. Regarding fan motor must be checked by the manufacturer/specialist. Check any alarms (full bag or engine protection)

Vibrations
Check the impeller for dirt or damage. Check engine for bearing noise.

Engine overheating
Check for damage to the engine. Check cause.

Bad suction - incorrect direction of rotation of fan
Check the direction of rotation of the impeller (both directions of rotation will create suction). Exchange phases in case of wrong direction of rotation.
Check for tight filter, channel network and damper/suction to processing machine.

Bag filter and waste bag
Replace bag filter and pressure equalization filter approx. once per year or when it is dense.

Change the waste bag when the bag is full. This is revealed by inspection and visual inspection, or when the full-bag alarm gives a signal. The sensitivity of the full-bag sensor is adjustable, see the top of the sensor, under the plastic screw there is a small brass screw that can be adjusted as needed.
Make sure that the waste bag is placed properly in the holder and that the holder is placed against the packing before the door to the waste bag is closed.

Use only waste bags made of thick-walled paper.

If the bag is sucked into the filter unit, this indicates that

air is leaking in at the bottom door, and that this must either be cleaned or tightened for better sealing.

Red warning light is lit/flashing - see chapter 7

9 Maintenance

Daily inspections include visual observations and function observations. Errors must be reported to maintenance personnel.

Weekly/monthly inspection includes replacement, inspection of bag and filter, as well as cleaning of the unit inside.

Parts that are replaced if necessary:
Waste bags, 240 L, are exchanged for equivalent paper waste bags, plastic bags must not be used. These will be absorbed at low pressure differences.

Parts that are inspected and recommended to be replaced annually:

Parts that are inspected and recommended to be replaced annually:
Rubber suspension for filter bags. 3 suspensions + motor shaft from shaker motor holds filter bags. The rubber is exposed to relatively hard loads and has a limited lifespan.Vi anbefaler å etterse alle gummioppheng årlig.

The main filter and pressure equalization filter are recommended to be changed once a year.

Periodic and planned inspections include filters, fans, bearings, motors etc. leaks in pipes, dampers etc.

To ensure correct function, we recommend carrying out technical inspections of the unit at regular intervals periods. Check off
- fan
- the filter cleaning/shaking mechanism
- electrical functions
- dampers, pipes, connections

Changes are carried out by qualified personnel or by the caretaker service

Before maintenance: Switch off the unit, red power switch (-S1)

Make sure that the risk of the device being started by service workers is eliminated. Set switches on the unit's control cabinet in the "off" position. Feel free to use warning signs:
"DO NOT SWITCH ON GENERATOR - MAINTENANCE WORK"

Wait until the motors stop rotating. Before maintenance, remove contaminants that have accumulated inside the unit.

The unit can be operated again after safety checks and maintenance have been carried out.

Maintenance and service plan for the unit, see suggestions below:

Action	Periodic	By need	Interval periods
Check for damage, corrosion, vibrations	x		Upon receipt/ monthly
Cleaning of seals/ doors/interior	x	x	Monthly, at bag change
Check fan rotation	x		At startup
Check the filter cleaner	x		Annual
Change main filter and control filter	x		Annual
Check fan wheel/ impeller	x		Annual
Inspect the bearings for bearing noise	x		Annual
Grease the bearings	x		25,000 hours
Check motor protection switch and terminal clamps	x		By alarm/ yearly
Check and clean capacitive sensor (full-bag alarm)	x	x	Monthly
Check start/stop with dampers and flap valves	x	x	Annual

Maintenance and recommended service
Do not use water when cleaning the unit.
Use only original spare parts

10 Safety

Start and use is only recommended when you are familiar with the contents of this user manual. Electrical connections must be connected according to the attached electrical diagrams and in accordance with the recommendations of Chapter 6 of this manual.

Work related to electricity must be carried out exclusively by knowledgeable personnel. Do not use the unit for extraction from tools that cause sparks or heat.

11 Transport and storage

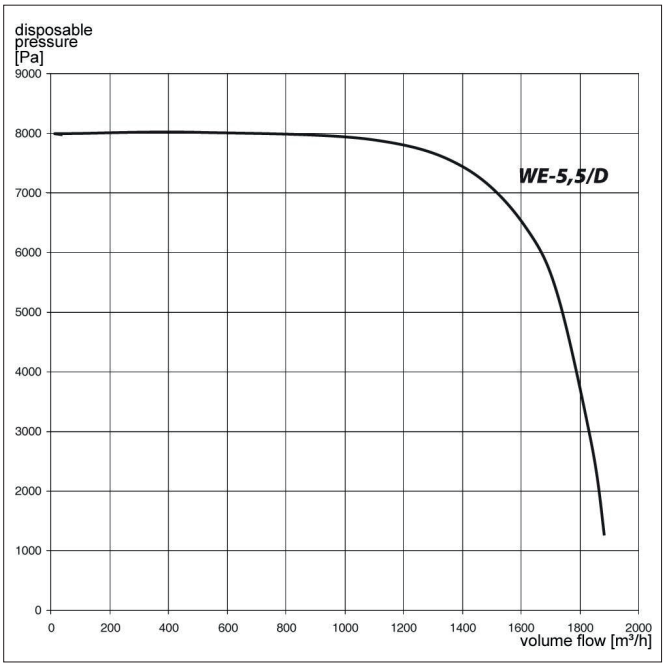
The unit is delivered assembled in foil, placed on a pallet. During transport, the device must be protected against tipping and impact damage.
Always check the device upon receipt!!!! Check for transport damage, damage to packaging, to the surface
Improper handling of the device during transport, loading and reloading can cause:
- Damage to unit housing, fan, control cabinet, automatics.

Storage info:
- The unit must be stored in packaging that protects it from external influences.
- Storage space must be dry, humidity should not exceed 70%, dust loads should be avoided.
- Storage temperature -25°C to 40°C

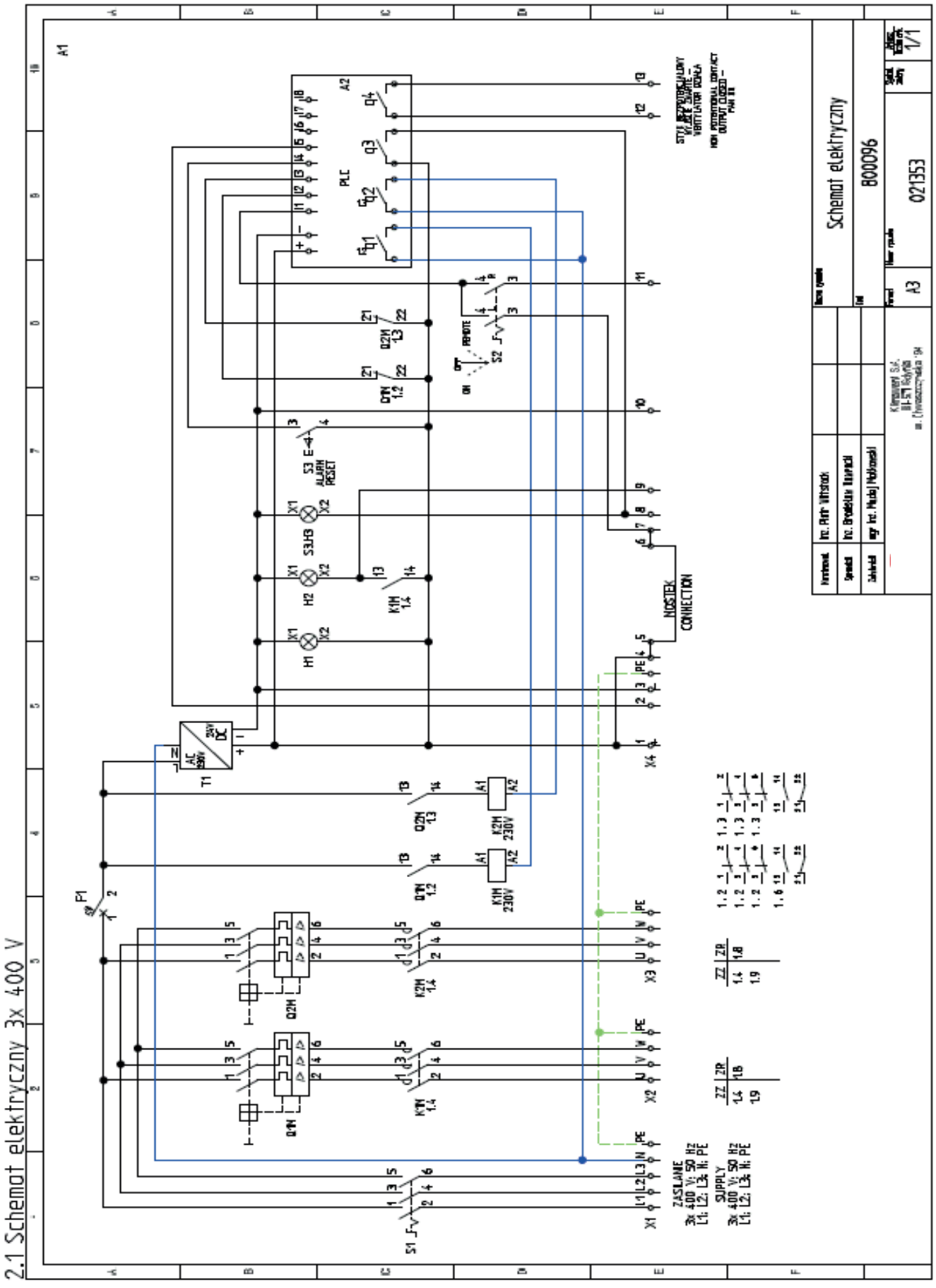
12 Terms of the guarantee

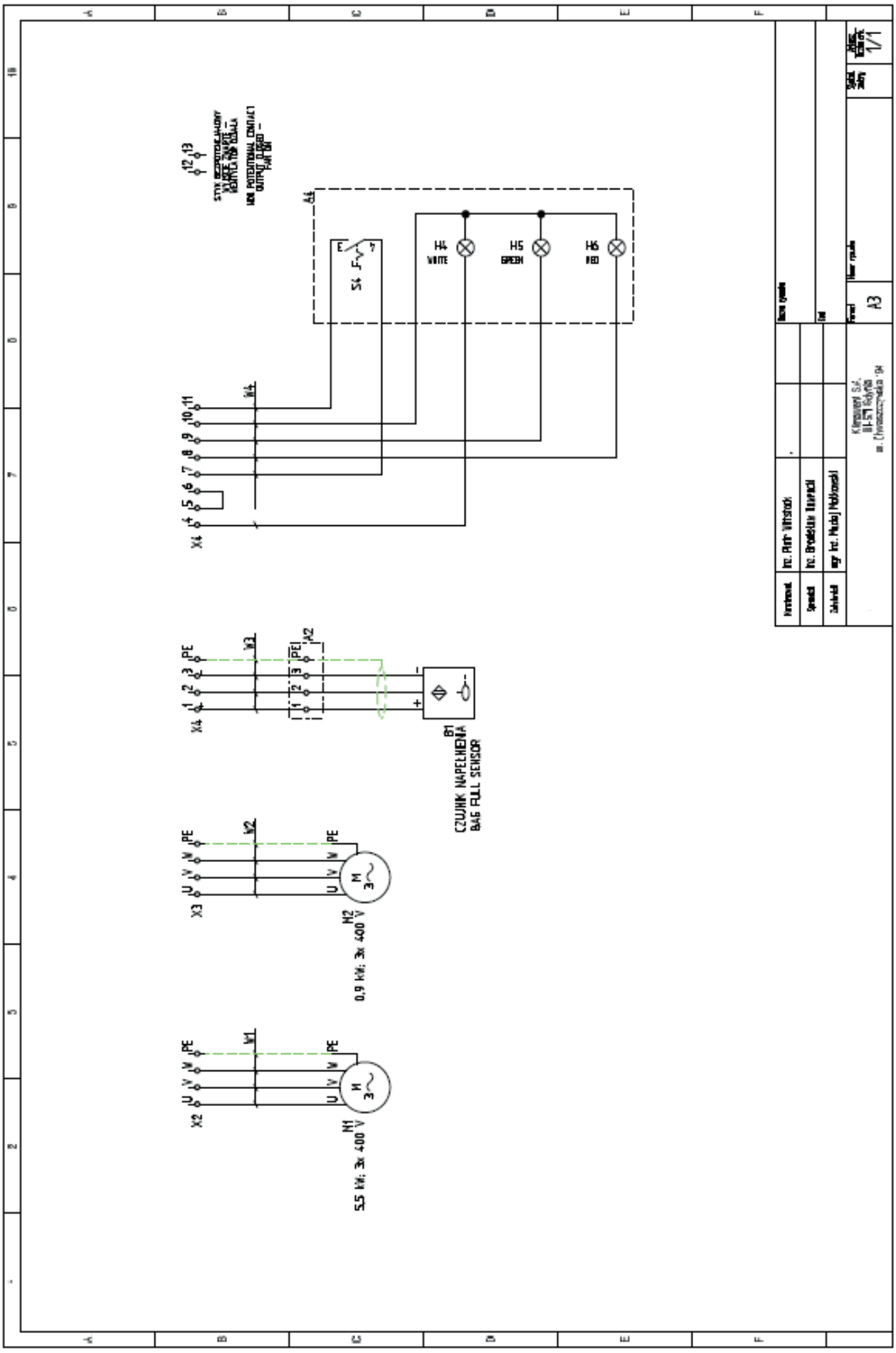
Warranty for the purchased unit is in accordance with NL09. The warranty does not cover:
• mechanical damage and problems caused by the user or installer
• defects and damage caused by incorrect use described in this guide
• damage that occurs during transport, storage or inade quate maintenance,

Violation of the points in chapter 3 “Reservations from the manufacturer” leads to the loss of warranty.
Modifications and changes made by the user to the unit will void the warranty.



13 Air volume and pressure

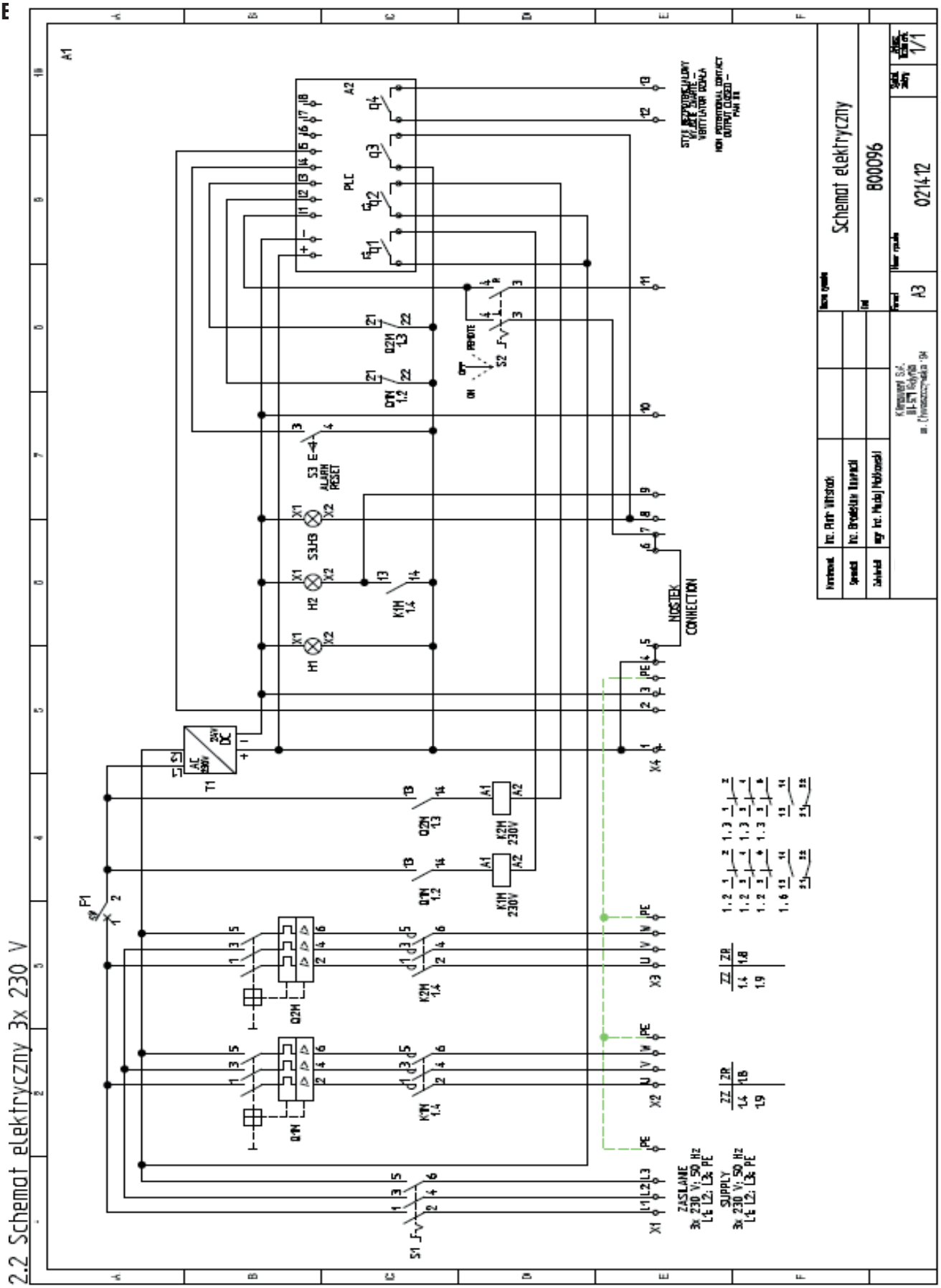


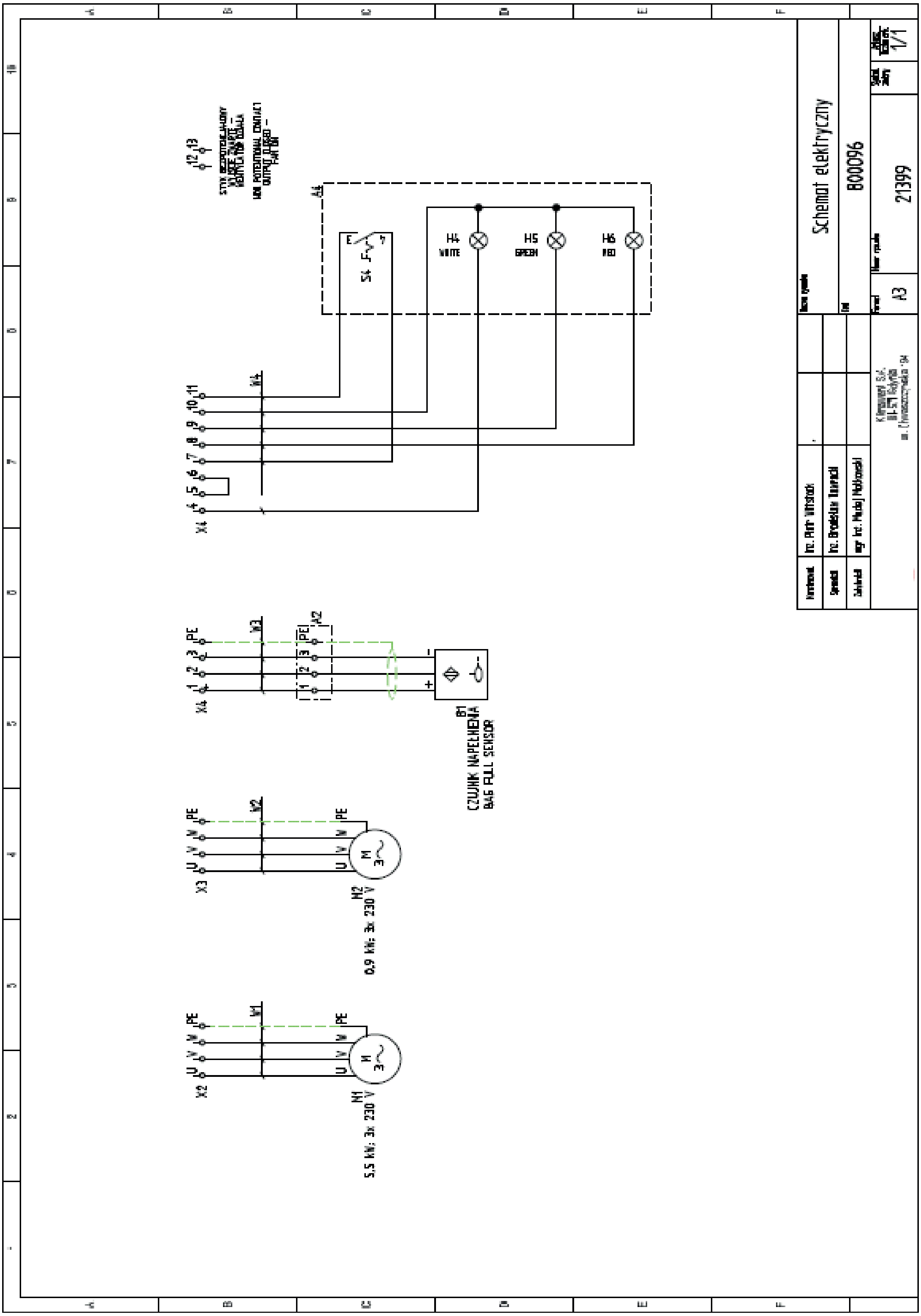

X4
X3
X2
M1
M2
B1
CZUJNIK NAPEŁNIENIA
BAG FULL SENSOR
0,9 kW; 3x 400 V
5,5 kW; 3x 400 V
H4
H5
H6
S4
WHITE
GREEN
RED
A3
1/1

14 Electrical connection diagram for 3 x 400 V

(ask for separate forms, if they are difficult to read)

15 E




Schemat elektryczny
B00096
21399
A3
1/1
H4
WHITE
H5
GREEN
H6
RED
S4
X4
X3
X2
B1
CZUJNIK NAPEŁNIENIA
BAG FULL SENSOR
M2
0,9 kW; 3x 230 V
M1
5,5 kW; 3x 230 V

3 x 230 V

(ask for separate forms, if they are difficult to read)

16 Simple system description of chip extraction WE-5.5 (5.5 kW)

The WE units have been developed for chip and chip extraction in ductwork rooms and smaller carpentry workshops with a focus on the following parameters:

- Point extraction, closed system
- Vacuuming of benches and floors
- Ease of use and suitable automation
- Area-efficient and easy installation
- Simple maintenance

Point extraction, closed system

The unit produces up to 1,800 m3/h in free-blowing mode, and normally has the capacity for 1-2 machines in simultaneous operation. This of course depends on the design of the pipe network and the total pressure drop in the system. By leading the exhaust air out of the room, you also avoid the return of odours, gases and micro-particles, i.e. a closed system.

Vacuuming of benches and floors

The maximum static pressure turnover in the aggregates is approx. 8,000 Pa. This is sufficient to provide a satisfactory vacuuming effect, and is an appropriate way of removing dust. The dust is removed at the first touch and the stirring up of fine particles, as when sweeping, is avoided. Hand tools can also be connected to the vacuum cleaner outlet.

Ease of use and suitable automation

The units are supplied with

- automatic filter cleaning to avoid a clogged filter and reduced suction volumes. After each shutdown, the filter is cleaned automatically.
- capacitive sensor for notification of full bag. When the waste bag is full, the unit stops, the bag must be replaced and the signal must be acknowledged before re-starting the system (standard). Sensitivity is adjusted after the system has been put into use and the dust is known.
- start and stop using micro switches on machine connections (dampers) and vacuum cleaner outlets (flap valves). Micro switches short-circuit a 24 V circuit and start the unit (standard).
- other automation on request.

Area-efficient and easy installation

The unit is delivered complete, with a free-hanging automatic cabinet, is around ø800 mm, and has a rotatable inlet module. This contributes to flexible placement in relation to where the pipe is placed. Usual locations for the unit are in the ducting room or material warehouse.

Easy maintenance

The unit is an all-in-one unit. The waste bag is changed when the bag is full alarm. The filter is normally changed once per year. Fan is directly driven. The system is inspected once per year. Regular inspection for noises, changes in suction volume or mechanical breakage.
Itek offers complete service agreements with inspection and parts replacement.

17 Usage poster – hung up in the storage room

The WE units are intended for chip and chip extraction in slough rooms and smaller carpentry workshops:

- Point extraction, closed system
- Vacuuming of benches and floors
- Ease of use and suitable automation
- Area-efficient and easy installation
- Simple maintenance
- Automatic on/off when using flap valves/dampers
- DO NOT USE for emery wheels, cautery pens or any thing else that can create sparks.

Point extraction, closed system

The unit produces up to 1,800 m3/h in free-blowing mode, and normally has the capacity for 1-2 machines in simultaneous operation. This of course depends on the design of the pipe network and the total pressure drop in the system. By leading the exhaust air out of the room, you also avoid the return of odours, gases and micro-particles. The filter is cleaned with a shaking motor after use.

Settings on electrical control box

- Red main switch for power on and off
- Black switch “Local” for test and manual operation
- Black “Remote” switch for daily operation and operation from flap valves and dampers
- Shaking motor cleans the filter after each use.

Vacuuming of benches and floors

- Open flap valves, connect associated hoses. The unit starts automatically and runs until you disconnect the vacuum cleaner hose from the flap valve.

Chip extraction from machines

- Flexible hoses mounted on sliding dampers are connected to the outlet of the woodworking machine. The chip extractor/aggregate is started by opening/pulling out the sliding damper. The sliding damper is opened before the processing machine (saw, planer, etc.) is started, and closed after the processing machine has stopped. If chips build up in the hoses, shake the hoses while the unit is running to remove chips.

Regular inspection

- Dust is removed from dampers, flap valves and aggregate.
- Dust is removed from the waste bag’s chamber and door. The door MUST be closed.

- In the event of an alarm, check the operating instructions
- The bag is changed if necessary. Use the right cardboard bag.
- Check that the bottom door is tight and free of dust, otherwise the bag will be sucked into the filter and give an alarm.
- Filters are changed at least once a year
- Steady red alarm light means that the bag is full, or that the bag is being sucked up
- Flashing red light means that a motor protection has tripped

Read operating instructions!
NB! Fan and other moving parts can cause personal injury if they are touched during operation! Only authorized personnel must open the top hatch on the unit.

6.0 EC declaration of conformity according to Appendix IIA

GEOVENT

HOVEDGADEN 86 • DK-8831 LØGSTRUP
(+45) 8664 2211 • salg@geovent.dk

The producer hereby declares that:

Product: Chip extraction system
Model: WE 5,5

is in accordance with the following directives and standards:

European Parliament and Council Directive 2006/42/EC of 17 May 2006 on machinery and on amendments to Directive 95/16/EC

EN ISO 14121-1:2007	Risk assessment – Part 1
EN ISO 12100-1:2005	Basic concepts and general principles for planning
EN ISO 12100-1:2009	construction and design Part 1: Basic terminology and methodology
EN ISO 12100-2:2005	Basic concepts and general principles for planning
EN ISO 12100-2:2009	construction and design Part 2: Technical principles

Authorized to collect the technical dossier:

Lise Cramer

Date: 05.01.2023

Profession: Director
Name: Thomas Molsen

Signature :

CE