

Name: Flexiseeder Single Ear Thresher and
Small Sample Thresher (SST)
Date: 22-07-2024 (EJS)
Revision: 01



Operating Instructions

Flexiseeder Single Ear and Small Sample Thresher (SST)

For Laboratory and Seed Industry



Table of Contents

TABLE OF CONTENTS	1
1. GENERAL.....	2
1.1 Manufacturer	2
1.2 Contact Persons.....	2
1.3 Security	2
1.4 Warnings / symbols used in this user manual.	3
1.5 Disclaimer	3
1.6 Guarantee	4
1.7 Name plate / serial number	4
1.8 Operating conditions	4
1.9 Noise level.....	4
1.10 Lubrication.....	4
1.11 Cleaning	4
1.12 Disposal	4
1.13 Ordering spare parts	4
1.14 Basic operating principles	4
3. Startup.....	6
3.1 General	6
3.2 Control panel	6
3.3 Use of the machine	6
4. MAINTENANCE.....	7
5. TECHNICAL SPECIFICATIONS.....	8

1. General

Before using the product, please read this user manual carefully.

1.1 Manufacturer

The manufacturer of this machine is:
Flexiseeder Ltd
Klondyke Drive, Hornby South, Christchurch
8042 New Zealand
Mobile: +64 27 2425 707
Mail: stevensj@flexiseeder.com

1.2 Contact Persons

Flexiseeder Ltd
John Stevens
Klondyke Drive, Hornby South, Christchurch
8042 New Zealand
Mobile: +64 27 2425 707
Mail: stevensj@flexiseeder.com

European dealer
S-M-V ApS
Jens Jensen
Strøby Maskinværksted
Windspinderiej 26
4671 Strøby
Phone +45 56573080
mobile +45 20323081
Mail: mail@smv.dk
www.s-m-v.dk

1.3 Security

The Flexiseeder Single Ear and Small Sample Thresher (SST) is designed to thresh single ears and small samples, put into the machine by hand.

The user (the company) must observe and check the following safety precautions.

- Flexiseeder Single Ear and Small Sample Thresher (SST) may only be operated and looked after by persons who have been trained with the help of these operating instructions and who can be expected to perform their tasks reliably in compliance with all regulations and instructions.
- The company must ensure that the supplier's enclosed operating instructions are followed. If necessary, he must draw up supplementary instructions for use.
- The company must ensure that there is sufficient freedom of movement around the machine when working with it.

- The location of the emergency stop switch must be known to the operator of the machine and what it means when it is activated.
- Persons moving near the machine must be aware of the machine's movements in all respects.
- To maintain function, the machine should only be used for its intended purpose.
- Pre-determined purposes include maintaining the established operating and maintenance regulations, as well as taking into account possible fault conditions.
- In the basic structure of the machine, the greatest possible safety was taken into account, cf. the latest technical standards.
- The regulations for dealing with accidents drawn up by the relevant professional organisations, the Norwegian Working Environment Authority and other local safety regulations must in principle, be complied with.
- The conditions of competence for commissioning, operation and maintenance must be determined and must be observed, so that there is no ambiguity about competence in connection with safety issues.
- Anyone working near the machine must know the contents of the operating instructions and comply with them.
- The operations manager is obliged to teach his staff according to the operating instructions and to ensure that all regulations and instructions are complied with.



WARNING

Protective devices:

All protective devices must be in place. They may only be removed in connection with maintenance. Here, the electricity supply must be disconnected and secured by the maintenance staff.

Maintenance may only be carried out by trained personnel and in compliance with all safety precautions. The staff must have undergone special training in the dangers that may arise. After completion of maintenance, all protective and safety measures must be checked.

Dampness and humidity

All parts in the electrical system must be protected against wetness and humidity. This means that dashboards must always be closed when no service is being carried out.

Note:

- You must always consult with SMV ApS before using tools or other equipment that is not recommended/specified in this user manual.
- In order to maintain the warranty, you must always use original spare parts from SMV ApS.
- It is the customer's responsibility that the Flexiseeder Single Ear and Small Sample Thresher is always clean, and in particular the control system must be free of dirt, grease or oil.
- It is the customer's responsibility that protections, screens and other safety-relevant parts are intact and mounted in the right place. They must not operate the Flexiseeder Single Ear and Small Sample Thresher if this is not the case.
- You must always exercise care when handling the Flexiseeder Single Ear and Small Sample Thresher. The machine has a robust design.
- As a minimum, there must always be an instruction book near the machine available to service/maintenance personnel.
- Avoid changing the size or type of the components.
- Avoid operating the Flexiseeder Single Ear and Small Sample Thresher if an unusual noise occurs during use.

Personal security:

- Take care that long hair and loose clothes cannot be trapped in the machines' rotating parts.
- If a chemical solvent is used for cleaning, read and carefully follow the manufacturer's instructions before use.
- To ensure correct and safe working conditions, the work area must be sufficiently lit.
- *Safety-relevant parts (e.g. protective caps) must not be removed until you have read all the following points:*
- Before servicing the Flexiseeder Single Ear and Small Sample Thresher, it must be ensured that the power supply to the machine is disconnected and secured against accidental connection.
- You must ensure that the instructions for use have been read and understood.

1.4 Warnings / symbols used in this user manual.

To ensure that you perform certain tasks correctly, note the following symbols used throughout this manual.



WARNING: Important information to prevent personal injury when you try to carry out a task.



CAUTION: Important information to prevent damage to components when attempting to perform a task.



IMPORTANT: Information that must be followed when you perform a task.



NOTE: Tips and additional information to help complete a task.

1.5 Disclaimer

S-M-V ApS reserves the right to change this document without notice. The document has been proofread.

This document is updated regularly; changes will be released in future editions. Improvements and/or changes to the described products or instruction manuals may be made at any time without prior notice.

S-M-V ApS disclaims liability for accidents and consequential damages. This includes but is not limited to: damage to other property or person, disruption, loss of goodwill, loss of profits, loss of use of this product or related equipment, cost of obtaining replacement

equipment, cost of lost work or claims by other parties for damages resulting from misspellings or incorrect information in this manual.

This document or parts thereof may under no circumstances be copied, reproduced, changed or translated into other languages without prior written permission from S-M-V ApS.

1.6 Guarantee

The warranty does not apply where there is definite evidence of abuse, misuse, improper maintenance, accidents or modifications.

The warranty is void if attempts are made to change, repair or disassemble parts that are not mentioned under the section "Maintenance", without prior permission from SMV ApS

1.7 Name plate / serial number

Before you contact S-M-V ApS, please note the name of the product and any serial number.

This will facilitate the identification process of the actual delivered product and will help to locate any problems.

1.8 Operating conditions

The Flexiseeder Single Ear and Small Sample Thresher is designed to operate indoors. The machine must be supplied with 240v + ground wire.

1.9 Noise level

The A-weighted noise level for workstations does not exceed 70 dB(A).

1.10 Lubrication

The Flexiseeder Single Ear and Small Sample Thresher must be serviced/lubricated and maintained as specified for the parts including motor, belt drive, beaters and the control system.

1.11 Cleaning

See section 1.3 , before you start cleaning of the Flexiseeder Single Ear and Small Sample Thresher.

1.12 Disposal

The operator and/or user are responsible for the correct disposal of Flexiseeder Single Ear and Small Sample Thresher.

If you are in doubt about correct disposal, please contact SMV ApS or the regional waste companies for further information.

Cabinets

Apart from the electronic equipment, the cabinets are generally made of painted steel, and can be treated as steel waste. Regarding the electronic equipment, see the section "Electronics" below.

Electronics

All electronic equipment such as computers, monitors, PLC I/O, sensors, control lamps, cables and the like must be treated as electronic waste.



1.13 Ordering spare parts

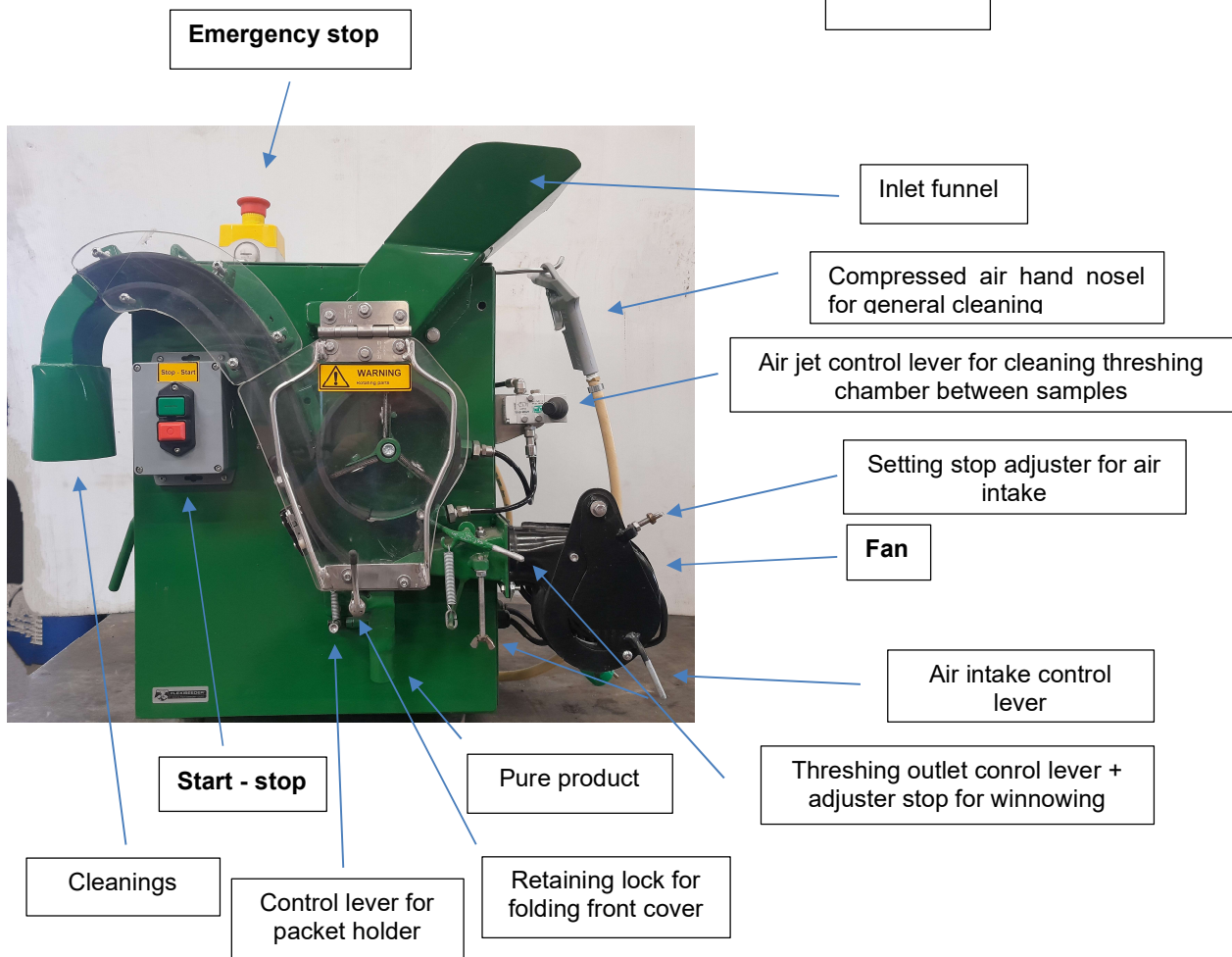
When ordering spare parts for the Flexiseeder Single Ear and Small Sample Thresher, please state the type and serial no.

- When ordering spare parts, please see the contact information in section 1.2.

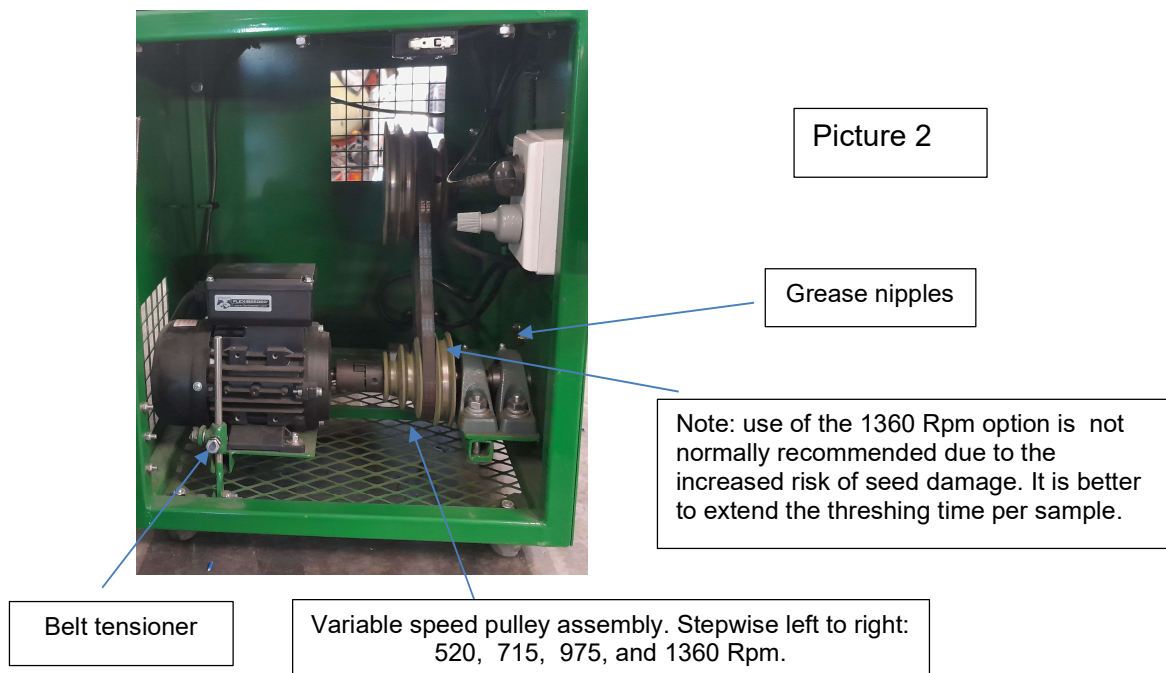
1.14 Basic operating principles

Machine threshes (extracts) the seed using an axial rotor fitted with three rubber patches. The control panel contains all necessary switches for starting/stopping the electric motor. Additionally, there is an emergency stop located on the top of the machine.

Picture 1



Picture 2



2. Threshing equipment

Flexiseeder Single Ear and Small Sample Thresher consists of three main parts.

1. Steel frame which contains all components.
2. Motor with belt drive to shaft with threshing device.
3. Electric fan for cleaning what is passing through the thresher.

(See picture 1 detailing components)

3. Startup

Before you start operating Flexiseeder Single Ear and Small Sample Thresher you must have read and understood the operating instructions.

3.1 General

Flexiseeder Single Ear and Small Sample Thresher comprises three main components already described in Section 2 plus Pictures 1 and 2. Adjustment components include:

1. Variable speed four-step pulley assembly.
2. Drive shaft with removeable three bladed rotor for threshing, or blank for winnowing.
3. Adjustable inlet choke on the electric fan for controlling air flow.

3.2 Control panel

The control panel contains one green start button and one red stop button. An emergency stop button is located on the top of the machine.

3.3 Use of the machine

- The thresher rotor has four speeds which are easily changed by moving the V-belt to another track (See Picture 2).
- Larger disc on the motor = higher speed of the thresher rotor. Left to right:
 - No. 1: 520 Rpm
 - No. 2: 715 Rpm
 - No. 3: 975 Rpm
 - No. 4: 1360 Rpm (not generally recommended due to risk of seed damage and high start torque on motor. Instead, it is better to extend the threshing time.)
- The threshed material is collected in a suitable container. The cleaned parts are sucked away with suitable equipment, including centralized industrial extractions systems.
- Take care when connecting the waste outlet of the thresher to centralized extractor systems, to ensure additional air can be allowed into the extractor pipe in a controlled way at the point of attachment to the thresher. This prevents over-drawing on the machine and sucking out threshed seed. This must be adjusted by trial and error, and standardized for what is being threshed at the time. Keep in mind how venturi work, since that is the kind of effect that you are aiming for.
- Some people, devoid of any warranty, have successfully removed the thresher fan completely, and only relied on the suction of the centralized extraction system, with excellent results.
- The force of air passing below the exit trap door of the threshing chamber is adjusted by the position of the flap on the inlet side of the fan. Note the return screw set stop adjuster with locking nut.
- The full force of air from the fan can be provided to blow out waste between samples, by over-riding the stop adjuster and completely opening the fan inlet. This can be assisted by using the lever valve mounted on the main frame to activate the in-line compressed air jets. The handle is situated near to where the hand-held air gun is hung between use. These jets are operated independently of the hand-held air gun.
- Note the adjustment stop on the air inlet flap is for setting the required degree of closure for the samples being threshed. Achieved by limiting the flow of air to a level that does not blow out threshed seed to waste.
- This way, the flap is free to be opened fully between samples to help clean out waste, then returned to its original setting, for consistency of operation.
- Generally, set the flap so that threshed seed falls cleanly into its container, while the lighter

trash is blown to waste. Often lighter seeds within the samples can be seen “dancing” up the waste shoot on the air stream from the fan, as they fall through it off the exit trap door to the threshing chamber. Use this as a guide for setting air flow from the fan. Just like on a combine. This prevents light seed from being blown to waste.

- Put as little straw as possible through the threshing chamber. The inlet tray-come-funnel is designed so that the heads / panicles can be slid into the chamber for stripping, held by the stalks/stems, which are then withdrawn and put directly into a waste bin.
- Used sensibly, this can considerably increase through-put and efficiency.
- Keep an open mind. It is generally possible to put full ears of wheat, triticale and barley through, very simply and quickly. In other instances, with specific crops, the head / panicle can be run through the hand to roughly strip off the seed, like oats for example, which are then run through the machine for final threshing.
- Winnowing: Generally, this is not necessary. However, if the seed is not perfectly cleaned during threshing, it may be poured through the machine again with the threshing drum trap door held open on the adjuster screw, either with the standard beater / rotor in place; or if there are many samples, the beater head replaced with the blank shaft stored inside the door.
- The machine is used generally in this way with the blank rotor fitted, for the final cleaning of multiple samples taken from bulks threshed using other larger equipment, even field scale.
- The beaters are interchanged by un-screwing the center locking bolt, using a suitably sized Allan key (hexagonal tool) and then drawing the rotor / blank off the parent shaft, where it is a simple friction fit. Take care not to lose the spacer washer between the beater and the backing plate of the threshing chamber.
- *If replacement beater pads are required urgently, they can be fabricated at the end users' risk, devoid of warranty, from comparable beater belting with two layers of canvas.* There is a hole punch stored inside the door where there is also a spare beater head stored.
- For fine seeds, the beater pads may be adjusted out in the retaining slots (by loosening the retaining bolts attaching them to the arm) so they are just rubbing on the rasp bars in the drum; **provided the beater is run on its slowest speed.** One beater may be dedicated to this setting.

- Otherwise, the beaters should be adjusted to run so that the pads just clear the rasp bars in the threshing drum. Re-adjusting this clearance is considered periodic maintenance, checked daily during use, to ensure consistency of operation.
- *Generally, it is best to run the beater speed at the lowest setting where it is effective for the crop being threshed, within an acceptable period of threshing time, to avoid damaging the seed.*
- ***Effective threshing, achieved gently at slow beater speeds, is a particular feature of this machine.***

4. Maintenance

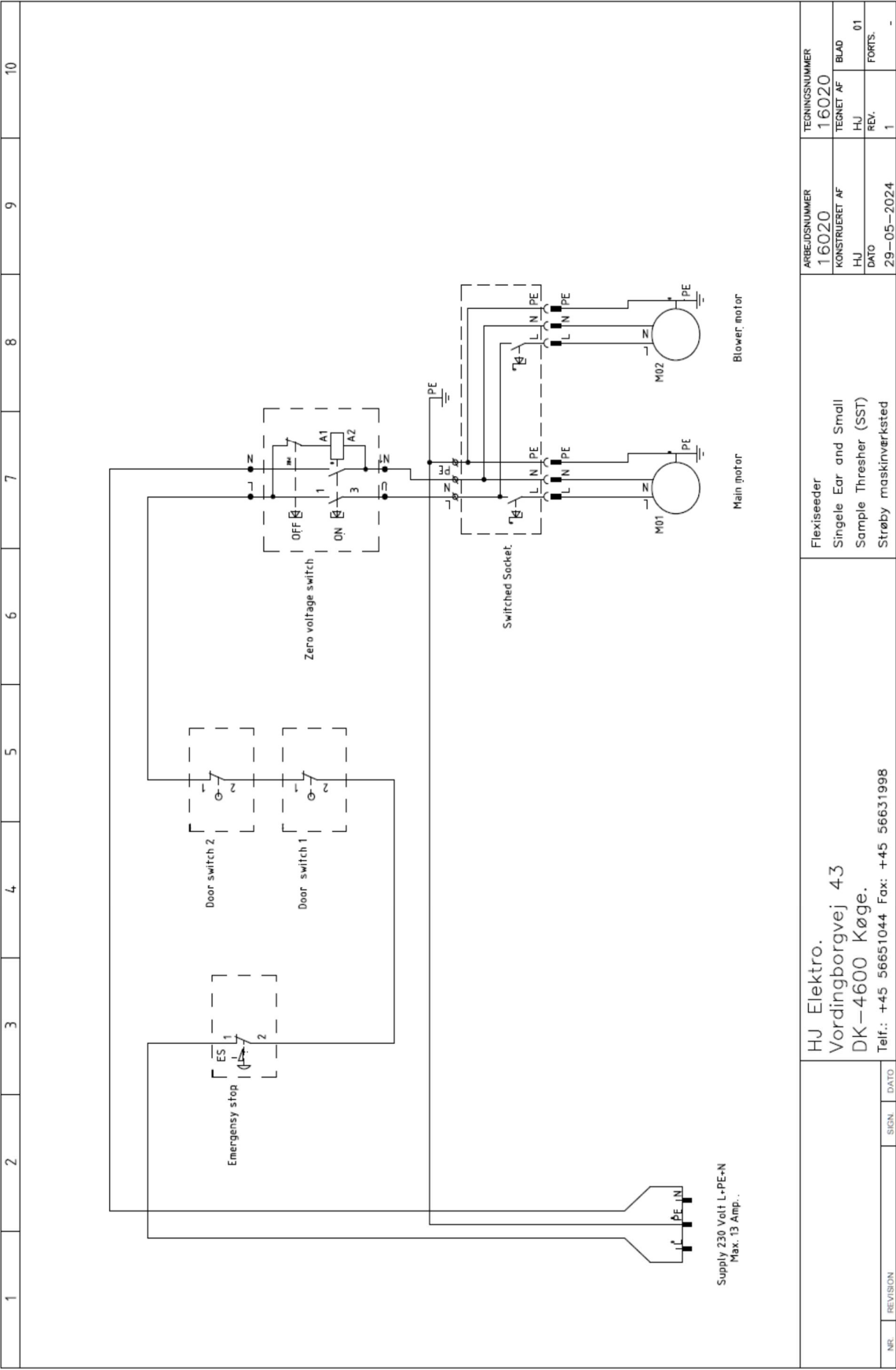
- The machine is to be kept clean and in good condition.
- Electrical parts must be intact and shielded from contact.
- Rubber flaps in the rotor are changed as needed.
- All bolts / screws on the machine are retightened regularly, and at least once a year.
- Two bearings on the motor shaft are lubricated with grease after 500 hours of operation, but at least once a year. The other two bearings located in the final drive shaft to the threshing chamber are pre-greased and factory sealed.
- Use only original spare parts.
- The front Perspex cover may be opened for additional cleaning, using the compressed air gun.
- If the Perspex becomes cloudy, it may be cleaned with toothpaste used as a mild abrasive, together with a damp soft cloth, used in a polishing action. Once the Perspex is clear again, it should be washed clean with warm soapy water, then rinsed with warm clean water.
- The sealing rubber facing bead in contact with the Perspex door and cover is attached to the metal using common high quality windscreen adhesive, by applying a small bead along the inner surface of the groove, then pushing it over the metal. Once in place, re-position the Perspex elements, then push out the rubber strip with a screwdriver until it fits firmly against the Perspex along its full length, sealing it perfectly. Leave the adhesive / silicone bead to dry for at least 24 hours, according to manufacturers instructions. After that, and/or subsequently, if anything changes and the rubber seal begins to leak, remove the Perspex and apply a little gentle heat to the leaking area of

the sealing bead with an air gun, until the rubber silicone becomes malleable. Replace the Perspex and again push out the bead until it seals, as already explained. It is a simple yet very effective operation.

- Only tension the drive belts as much as is required to run the beaters without slipping or vibrating unduly. Belts run too tight, load the motor unduly, creating friction and additional vibration “chatter”.
- The machine is renowned for how quiet it runs. If anything changes, please search out the source of additional noise. The cause may be as little as something rattling inside of the “box”, possibly even the spare beater stored inside the engine compartment door; or the belt set too loose, or too tight.
- ***Please get to know and treat your machine, like a friend. Listen to it and it will tell you many things, inside the box if something is not well, or outside of the box if the threshing procedure has changed.***

5. Technical specifications

Length	650 mm
Width	650 mm
Depth	550 mm
Weight	54 kg
Motor	230 volt 0,18 kw
Electric connection	230 volt + earth connection
Compressed air supply	8 bar
Speed 1	520rpm
Speed 2	715rpm
Speed 3	975rpm
Speed 4	1360 rpm
Compressed air supply	Max 8 bar
Grease lubrication	Lithium lng2



EC Declaration of Conformity

Manufacturer

Manufacturer's name: **Flexiseeder Ltd**



*Nordic – New Zealand
Industry Interface Support Initiative*

Mailing address:

Attention Dr John Stevens, 90 Governors Bay Road, RD1 Lyttelton, New Zealand, 8971

Deliveries, Pick-ups & Fabrication: 25 Klondyke Drive, Hornby South, Christchurch, New Zealand 8042

Telephone: +64 27 24 25 707 (New Zealand)

Email: stevensj@flexiseeder.com

Web: www.flexiseeder.com

Product

Machine: ***Flexiseeder SST Single Ear and Small Sample Thresher for Laboratory and Field use.***

Directives

We hereby declare that:

This machine complies with essential health and safety regulations in: Directive 2006/42/EC.

And that the machine, where relevant, complies with the following other directives:
EMC directive - 2004/108/EC

Standards

The following standards have been applied to the extent necessary to comply with the relevant directives:

DS/EN ISO 13850:2008 – Machine safety – Emergency stop – principles for design

DS/EN ISO 12100:2010 - Machine safety– General principles for construction – Risk assessment and risk mitigation

DS/EN ISO 13849-1:2008 – Machine safety -Safety-related parts of control systems - Part 1: general principles of design

DS/EN 60204-1:2006 – Machine safety– Electrical equipment – Part 1: General requirements

DS/EN ISO 14120:2015 – Machine safety– Protective screens – General requirements for the manufacture and construction of fixed and movable protective screens

Responsible person for the Technical dossier

Business: Flexiseeder Ltd

Address: 90 Governors Bay Road, RD1 Lyttelton 8971, New Zealand

Name: E. John Stevens. Managing Director

Signature

Flexiseeder Ltd
C/- Dr E J Stevens (Director)
Governors Bay Road
Rapid # 90
R D 1, LYTTELTON 8971

Place: Christchurch, New Zealand Dated: 17th July, 2024