

USER MANUAL

Liquid seed treatment applicator



Contents

EU Declaration of conformity.....	3
1. Safety	4
1.1 General safety instructions	4
1.2 Handling of seed treatments.....	4
1.3 Restrictions on use	5
2. Content	6
3. Technical specifications.....	7
4. Usage.....	8
5. Functions	8
6. Assembly	9
6.1 Installing the nozzles	10
6.2 Dosing and the nozzles.....	11
7. Taking into use.....	12
7.1 Testing	13
8. Trouble shooting.....	14
9. Maintenance and storing	15
10. Terms of guarantee.....	16
11. Responsibilities.....	17
Spare parts.....	18

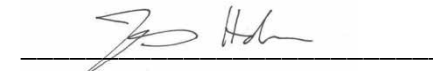
EU Declaration of conformity

Happowa Oy

Kankaantie 563, 62150 Rintakangas, Finland

We declare under our sole responsibility that the machine **Liquid seed treatment applicator** starting from production number 5200 are in conformity with the relevant Union legislation Machinery Directive 2006/42/EC.

Ylihärmässä 9.11.2018



Johannes Holkkola, Toimitusjohtaja

1. Safety

1.1 General safety instructions

- In addition to the instructions given in the manual, you must obey all the general safety rules concerning mechanical working.
- Before using the applicator, make sure that the device has been connected correctly and that covers are at place.
- All operating personnel must be familiar with the operating functions and the manual of this machine.
- Keep children and unauthorised people away while using, assembling or maintaining the machine.
- Always keep enough clean rinse water on hand.
- Pump a large amount of clean water through the system before maintenance. Always handle seed treatments with caution. Always use acceptable personal protective equipment.
- Inspect the condition of the hoses and the couplings regularly. Replace any damaged parts with new ones immediately. Notice that even a small detrition or corrosion may cause danger.

1.2 Handling of seed treatments

- Familiarise yourself with the safety and handling instructions of the seed treatment manufacturers.
- Always handle the applicator with caution and use appropriate personal protective equipment.
- Only use the applicator outdoors or in spaces with adequate ventilation.

- Use an appropriate respirator if ventilation is inadequate.
- Use tight-fitting safety goggles to protect your eyes and keep clean water in a bottle for rinsing out eyes.
- Use protective clothing, gloves and boots to protect from any splashing.

1.3 Restrictions on use

- The operator of the acid applicator must not be under the influence of narcotics, alcohol or powerful medications.
- In case of illness or disablement, the operation of the machine must be authorized by the attending physician.
- The applicator must not be used dry.
- Pumping inflammable liquids, liquids for human consumption, or additives is forbidden.

2. Content

- Seed treatment applicator unit
- Suction hose and return hose, 3 m
- Pressure hose 2 m
- Measuring dish
- User manual
- Nozzle body
- Nozzles 5 pcs
- Nozzle body fasteners 2 pcs

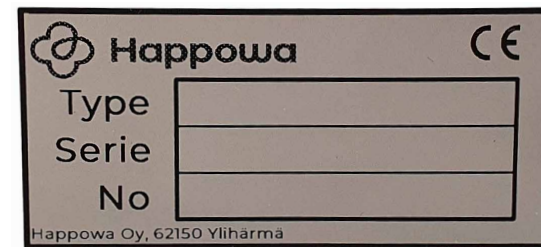


3. Technical specifications

You can find the identity information of the machine in the machine plate shown in the picture above.

- Type: Model of the machine
- Serie: Serial number of the machine
- No: Product number of the machine

With this information it is easier to maintain the product and order spare parts. It is recommended to write down the information of your machine to be able to find it easily.



	Seed treatment applicator
Operating voltage	12 V
Max. required current	6 A
Max. pressure	4 bar
Max. pumping capacity	3 l/min
Weight	5 kg

4. Usage

The seed treatment applicator is primarily intended for pumping and dosing fluid seed treatments for the control of the seed-borne diseases. The application equipment should always be thoroughly cleaned before and after use using a liquid detergent recommended by the seed treatment manufacturer.

⚠ NB! Some seed treatment concentrates do not allow diluting or cleaning with water.

⚠ NB! The machine must be protected from freezing.

5. Functions

The diaphragm pump of the applicator sucks the liquid from a container and sprays it through the nozzles with pressure. The machine recirculates some of the pumped liquid back to the container, stirring it at the same time. The return hose has a choker that restricts the liquid flow returning to the container.

The maximum pressure of the diaphragm pump is 4 bars. The pump is equipped with a pressure switch that stops the pump if the pressure rises above 4 bars.

The flow is adjusted roughly with the choice of nozzles and more accurately with the electronic potentiometer of the machine.

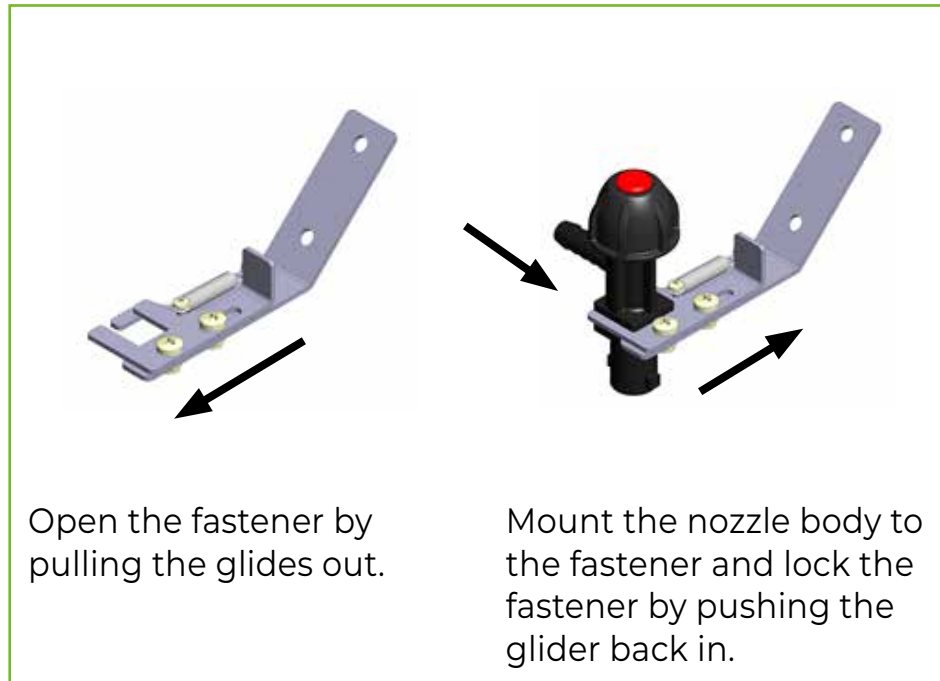
6. Assembly

The seed treatment applicator is primarily designed to be used as the pump unit stands on its own body, on a solid surface. It is also possible to mount the machine horizontally, eg. onto a wall or a trailer tailgate. For mounting onto a wall, the machine has fastening holes.

⚠ NB! When mounted to a trailer, the seed treatment applicator must always be detached when moving the trailer.

6.1 Installing the nozzles

The nozzle body is fastened with the nozzle holder delivered with the machine. Choose the fastening point in order to target the liquid spray evenly at the seed flow. Fasten the holder firmly to the body of the conveyor.



6.2 Dosing and the nozzles

The correct dosing can be calculated by multiplying the seed flow (kg/min) by the rate of use (ml/kg).

In the table below you can see the capacity of the nozzles with different pressure, when using Baytan Universal seed treatment. The values are only referential, since the viscosity and temperature of the liquid also affect the flow rate.

For example: The capacity of a screw conveyor is 100 kg/min and the rate of use is 3 litres/1000 kg (3 ml/kg), which makes the correct dosing $100 \text{ kg/min} \times 3 \text{ ml/kg} = 300 \text{ ml/min}$. This flow rate is gained with the nozzle 8001 and the pressure of ca. 1,6 bars.

Nozzle	1 bar	2 bar	3 bar
800050	120	170	210
800067	155	220	270
8001	240	340	415
80015	365	520	635
8002	440	620	760
	Flow rate ml/min		

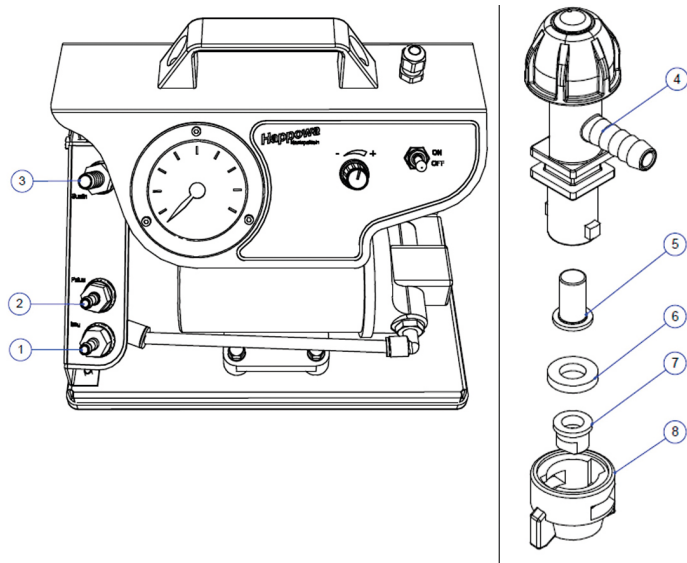
Check the correct flow rate using the measuring dish and a stopwatch.

7. Taking into use

⚠ Familiarise yourself with the safety instructions given in this manual before taking into use.

Install the suction hoses and the return hoses by connecting them with the hose couplings 1 and 2. Install the nozzle hose to the hose coupling 3 and tighten with a clamp. Install the nozzle body 4 to the nozzle hose and tighten with a clamp. Choose the right nozzle according to the rate of use and assemble the nozzle (see picture).

Turn the On/Off -switch to Off-position before connecting the power cable.



7.1 Testing

Prior to seed treatment pumping the system must be tested by pumping clean water through the pump.

Turn the potentiometer to the minimum (counter-clockwise) and turn on the machine. Increase the power by turning the potentiometer clockwise.

The following should be observed during the pumping test:

- The operating of the pump
- The operating of the flow sensor
- The evenness of the distribution of the flow from the nozzles

The durability of the equipment and all the joints

⚠ DO NOT USE THE PUMP DRY

8. Trouble shooting

Error	Possible cause	Solution
The pump does not start.	The pump is out of power.	Check the power cables and coupling.
	The fuse is blown.	Change the fuse.
The pump starts but then stops immediately.	The counter pressure is too high. The pressure switch stops the pump.	Remove the possible block, check the mounting of the quick couplings or widen the nozzles.
There is no suction.	A block in the suction filter.	Clean the filter.
	Air in the suction hose.	Check the condition of the suction hose and the joints.
	Debris in the pump or the valves are worn out.	Clean the pump and change the valves if needed.
The pressure is not stable.	Air in the suction hose.	Fill the container and make sure that the end of the suction hose stays below the liquid surface.

9. Maintenance and storing

⚠ Look up the suitable procedures for diluting the seed treatment and cleaning the application equipment in the instruction manual of the seed treatment used, provided by the manufacturer of the seed treatment.

⚠ Always use the appropriate personal protective equipment!

Draining after use:

- Lift the end of the suction hose above the liquid surface.
- Detach the nozzle from the nozzle body and lead the nozzle body either into the container or into a separate dish.
- Turn the applicator on and let it run at maximum power for ca. 10 seconds in order to drain the system from most of the liquid.
- Store the seed treatment left over according to the instructions given by the manufacturer.

Cleaning after draining:

- Lead the suction hose into a dish with ca. 5 litres of warm, clean water in it.
- Lead the return hose and the nozzle body into a separate dish.
- Pump the cleaning water through the system.
- Fill the dish with clean water again and lead the return hose and the nozzle body to the same dish.
- Turn the pump on and let it run at maximum power for a couple of minutes.
- Use the liquid detergent recommended by the seed treatment manufacturer if necessary.
- Drain the system according to the draining instructions.
- Carefully clean the nozzles using warm water or liquid detergent.
- If the applicator is stored in a cold place, pump antifreeze through the system before storing to prevent from freezing.

10. Terms of guarantee

- The warranty period for the machines manufactured by Happowa Oy is 12 months.
- The warranty period begins on the date the authorized dealer has delivered the new equipment.
- Warranty covers manufacturing and material defects.
- Damaged parts that have been made a complaint about during the warranty period will be replaced or repaired free of charge if they are returned to the manufacturer, the shipping paid by the customer.
- The parts that have not been manufactured by Happowa Oy, such as the circuit cards and electric motors, are covered by the warranty of the supplier in question.
- Warranty does not cover the operating and travelling expenses.
- Warranty is only valid if the fault has been reported to our dealer within 14 days from the delivery date.

Warranty does not cover:

- Damages caused by normal wear or incorrect maintenance.
- Damages caused by incorrect use.
- Repairs or changes made without the consent of the manufacturer and the damages caused by them.
- Secondary damages and the financial losses caused by them.
- Damages caused by incorrect wiring.

Subject to change without notice.


11. Responsibilities

Manufacturer is not responsible if the acid applicator is used contrary to safety regulations or this operating manual. Since the use of the acid applicator may cause situations for which there are no instructions or regulations, the operators are recommended to follow general machine safety instructions and directives.

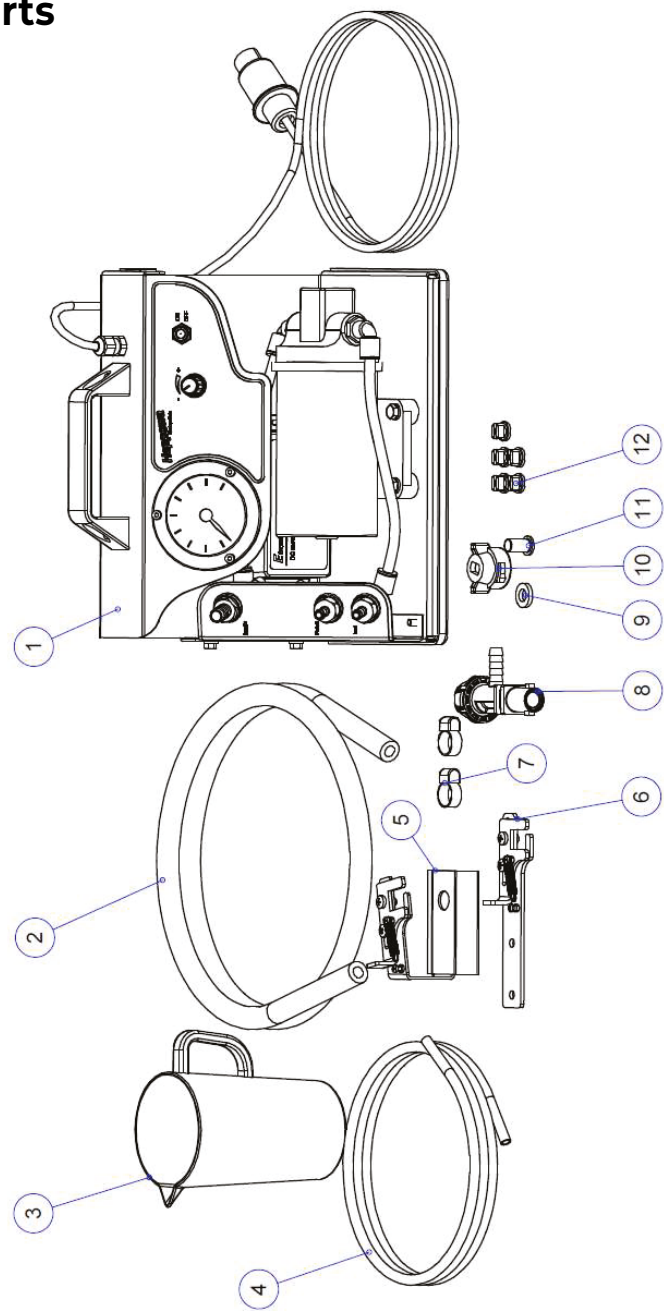
Note that the incorrect use of seed treatment may cause harm to people, animals, bodies of water and soil. Follow the instructions provided by the manufacturer of the seed treatment and other experts regarding the handling and use of seed treatment.

Manufacturer is not responsible for the incorrect use of preservatives or secondary damages caused by it. Manufacturer is not responsible for damages caused by the use of components manufactured by others. Manufacturer is not responsible for damages to other machines or equipment caused by the use of preservatives.

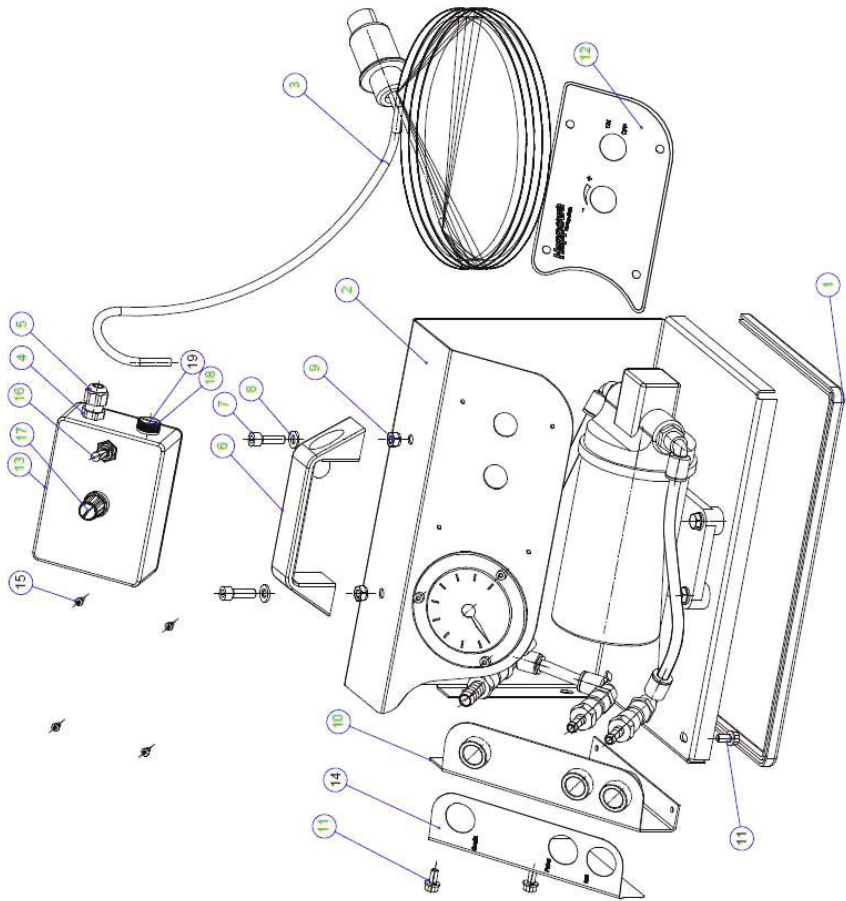
The owner of the machine is responsible for its use, care and maintenance. The owner of the machine is responsible for making sure that all people using the machine are sufficiently informed of its handling and use.

 Since the manufacturer cannot supervise the use of the products we can only guarantee their quality. We cannot take responsibility for the performance of the products.

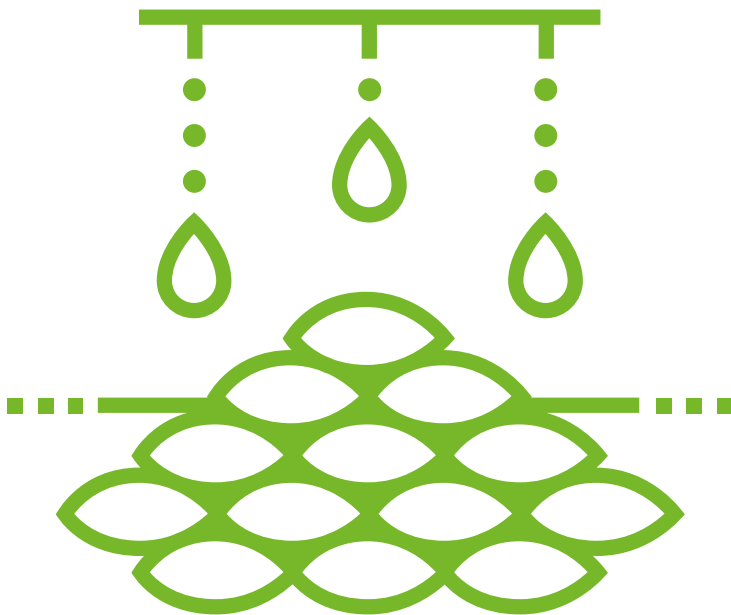
Spare parts



Osa Nr.	Tunnus Code	Suomi	English	Svenska	Standardi	Lisätiedot	Kpl. Pc. St.
1	370065	Peittainyksikkö	Applicator unit	Vätskebetare enhet			1
2	370013	Peittausletku 10 mm	Hose 10 mm	Slang 10 mm		1,5 m	1
3	370027	Mitta-astia	Measure	Uppmättningsbehållare			1
4	111658	Pur-letku 6/8 mm	Hose 6/8 mm	Slang 6/8 mm		3 m	1
5	344121	Suuttimen kierukkapidike	Nozzle body fastener	Munstyckshållare			1
6	344120	Suuttimen haarukkapidike	Nozzle body fastener	Munstyckshållare			1
7	328945	Letkunkiristin	Hose clamp	Slangklämma			1
8	344108	Suuttrunko	Nozzle body	Munstycksstomme			1
9	344022	Suuttimen tiiviste	Nozzle gasket	Munstyckstättning			1
10	344028	Suuttimutteri	Nozzle nut	Munstycksmutter			1
11	344026	Suutinsuodatin	Nozzle filter	Munstycksfilter			1
12	370006	Peittausuutin 800050	Nozzle 800050	Munstycke 800050		120-210 ml/min	1
12	370007	Peittausuutin 800067	Nozzle 800067	Munstycke 800067		155-270 ml/min	1
12	370008	Peittausuutin 8001	Nozzle 8001	Munstycke 8001		240-415 ml/min	1
12	370009	Peittausuutin 80015	Nozzle 80015	Munstycke 80015		365-635 ml/min	1
12	370004	Peittausuutin 8002	Nozzle 8002	Munstycke 8002		440-760 ml/min	1



Osa Nr.	Tunnus Code	Suomi	English	Svenska	Standardi	Lisätiedot	Kpl. Pc. St.
1	377017	Reunasuojanauha	Protective ribbon	Skyddatejpen		580 mm	1
2	370060_B	Runkolevy	Frame plate	Stativplattan			1
3	370034	Virtakaapeli	Power cable	Strömkabel			1
4	500343	Vastamutteri M12 musta	Cable gland nut M12	Kabelförskruvningmutter			1
5	500342	Holkittiviste M12 musta	Cable sealing clamp M12	Kabelhylsmutter M12			1
6	D30100	Kahva	Handle	Handtag			1
7	D912.M6x20	Kuusiokoloruuvi	Hex. socket head screw	Sexkantskålskruv	DIN921	M6x20	2
8	D125.M6	Aluslaatta	Washer	Bricka	DIN125	M6	2
9	D6921R.M5x10	Kuusiomutteri	Hexagon nut	Sexkantsmutter	DIN985	M6	2
10	370062	Kulmalevy	Elbow plate	Vinkelplåt			1
11	D6921R.M5x10	Laippahammastusruuvi	Screw	Skruv	DIN6921R		4
12	SH171163	Tarra, Annostelu	Sticker, dosing	Dekal, dosering			1
13	370040	Peittaimen sähkösarja	Cable set	Kabel set			1
14	SH171162	Tarra, lähdöt	Sticker, couplings	Dekal, kopplingar			1
15	D7981C.2,9*9,5	Levyruuvi	Plate screw	Plåtsskruv	2,9*9,5		4
16	500220	Vipukytkin	Switch	Strömbrytare			1
17	500821	Potentiometri	Potentiometer	Potentiometer			1
18	HTC-30	Sulakepesä	Fuse holder	Säkringshållare			1
19	20-10AF	Lasiputkisolake 10 A	Glass tube fuse	Glasrörsäkring			1



Happowa Oy
www.happowa.fi

puh. +358 400 863 514
myynti@happowa.fi