

## OPERATING INSTRUCTIONS

# **Flexomant** ONE & ONE-S, TWO & TWO-S

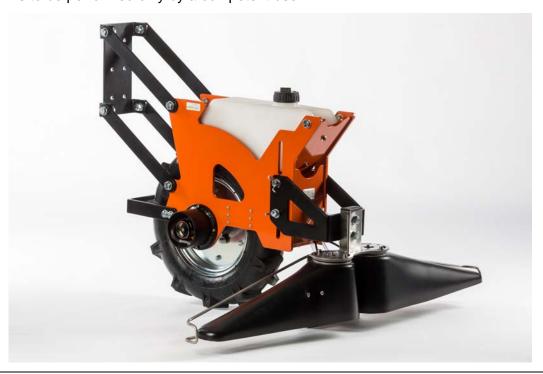


**ULV- Applicator for weed control** in areas of specialised cultivation such as nurseries, orchards and vineyards, ornamental plant and vegetable gardens, as well as agricultural, forestry, communal and non-cultivated lands.

#### **Important:**

Before application, carefully read the usage instructions for the unit and the plant protective agent! Observe safety instructions!

For questions regarding plant protective agents, consult the manufacturer! Observe the requirements and regional regulations for the use of herbicides and, if necessary, obtain approval from the responsible authorities (e.g. environmental conservation agency)! Application is to be performed only by a competent user.



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#### **FLEXOMANT**

## For the undiluted application of Roundup® products (Glyphosate)

#### Intended usage:

Weed control in areas of specialised cultivation such as nurseries, orchards and vineyards, ornamental plant and vegetable gardens, as well as agricultural, forestry, communal and non-cultivated lands.

Before application, carefully read the usage instructions for the applicator unit and pesticides. Observe safety instructions.

For questions regarding pesticides, consult the manufacturer!

Observe the requirements and regional regulations for the use of herbicides. Permission is required from the responsible authorities (e.g. environmental conservation agency) for the application of herbicides on surfaces used for non-agricultural, forestry or gardening purposes ("non-cultivated lands"). Application is not permitted on sealed surfaces (e.g. pavement surfaces) with connection to sewage water systems from which the danger of run-off exists! Application is to be carried out only by a competent user.

Noise emission from the unit equates to less than 70 dB (A).

#### **Protective measures**

Observe the remarks in the pesticide usage instructions regarding user safety and wear recommended body protection. Wear protective gloves when filling the chemical substance.

Do not eat, smoke or drink while working with pesticides. Avoid chemical spillage without fail. Thoroughly clean hands and face after completion of work.

Thoroughly clean and dry the unit immediately following its usage. Never use the mouth to blow out nozzles or other small parts!



Keep pesticide applicators and chemical substances away from children.

#### Assembly and preparation for initial application

Unit assembly is described for the individual models. Assembly of the spray hoods according to the draft on page 5. and connect all plugs. Please connect the hoses not until the output volume is checked. To check the spray width place underlay (cardboard or paper) on the ground and select a output quantity.

#### General remarks regarding applicator unit function and deployment

**Pesticides:** This applicator unit was originally designed for the undiluted application of Roundup products (Glyphosate). Practical experience has shown, however, that other herbicides can also be deployed in conjunction with this technology. Considering the many products on the market with their differing formulations, it is not possible to provide a complete list with application rate recommendations. Specifications for adjusting the unit listed on following pages relate to the usage of Roundup UltraMax (Glyphosate 450 gr/ltr). In general, all products with a comparable viscosity are suitable. If it is intended to use a product other than Roundup UltraMax, its application should be first tested over a small area on a trial basis. Usage instructions for the chosen herbicide should be observed in every case, along with local requirements.

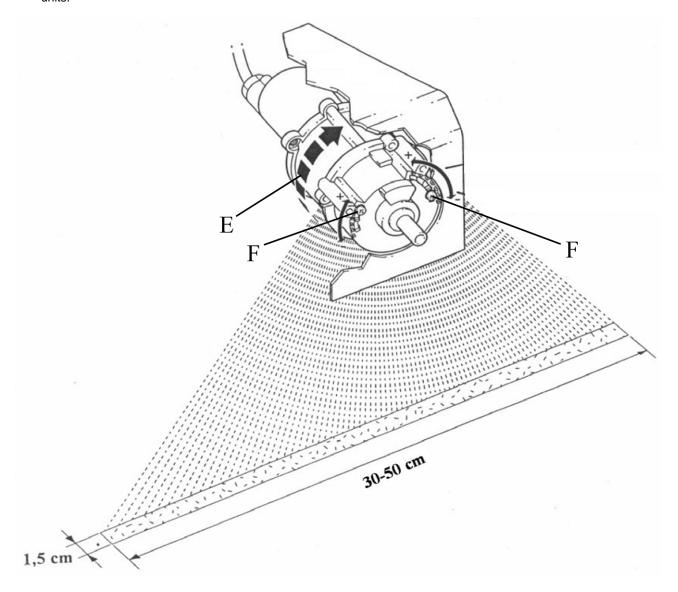
**Applicator unit function:** Rotating atomisers are driven by means of a rechargeable battery. Metering on all the units mentioned is path-dependent and takes place by means of a wheel driven pump. Droplets are formed by the centrifugal force of the rotating atomiser. The droplets are discharged downwards by the rotating atomiser through a continuously variable, adjustable segment. Residual chemical in the tank not intended for application is approx. 50 ml. This residual fluid can be refilled back into the original herbicide container.

Checking applicator unit function: Chemical solutions may flow quicker or slower due to temperature fluctuations, for which reason the flow rates in the Metering table should be checked and corrected as necessary. This system is not suitable for the application of water. Please use herbicides at all times for testing the spray process and calibrating the flow rate. Check the rotating atomiser on a daily basis for cleanliness and free turning motion. Check the output volume from time to time throughout the season.

**Deployment of the applicator unit:** Adjust the height of the spray hood in such a manner that it is as close to the ground as possible - if it is set too high, the risk of spray driftage exists. During operation, chemical fluid will collect in the rotating atomiser reservoir and will continue to drip for approx. 30 seconds after the shut-off valve has been closed if the unit is tilted. In order to avoid damage to cultivated plants due to dripping, we recommend closing the shut-off valve at the end of a row, for example, then folding the spray hood upwards and waiting approx. 30 seconds until the reservoir has emptied.

#### Spray width

- Place an underlay (cardboard or paper) on the ground and prop up the unit on stands.
- Actuate the switch button on the powerpack while simultaneously turning the wheel and appraising the spray width obtained, initially at one location. The spray width must be set in such a manner that the droplets are discharged over the entire width of the spray hood. The optimal spray width under standard operating conditions is set by the manufacturer.
- Compensate for deviations is possible by loosening screw (F) and sliding the width adjustment on the atomiser (see drawing).
- Further details regarding operating width adjustment can be found on the respective pages for the individual applicator units.



#### Cleaning

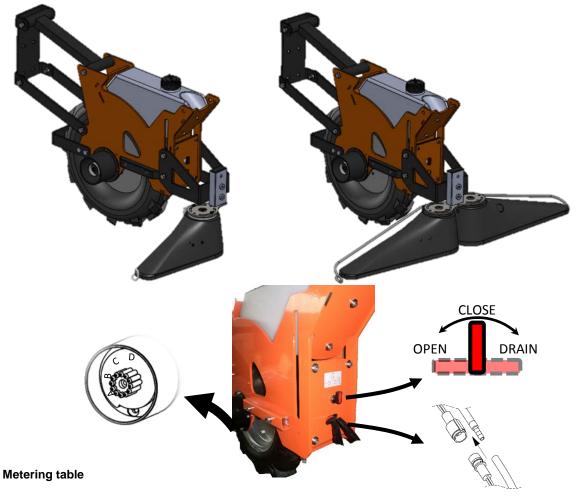
Do not clean the applicator unit with a high-pressure sprayer or with an intense water jet spray.

Cleaning during the season: During short work breaks (a few hours), herbicide can remain in the system as long as the shut-off valve remains closed. After work completion: before cleaning, refill the chemical solution into its original container. Open the shut-off and set the metering pump to maximum. Fill the chemical tank halfway with water, then, with the unit positioned, turn the wheel smoothly 50 x and allow the fluid to drain into a collector tank or, operating the unit for approx. 100 m, apply the cleaning fluid to the already treated surface. Remove any remaining water from the tank and turn the wheel 50 x once again until the system is completely empty.



Cleaning at the end of the season: Rinse the unit with warm water as described above. Additionally: Unscrew filter and clean screen as necessary. The spray hood and the atomiser housing can be cleaned with a moist cloth. Remove the atomiser disc in order to avoid damage. With heavy contamination, the atomiser housing should be unscrewed to remove contaminants and plant parts. Connect the unit to the charging device (see below).

# Flexomant



#### **Flexomant One**

Roundup UltraMax apllication rate at 20°C

Spray	hood 55cm	Spray	hood 40cm
В	1,1 l/ha	Α	1,1 l/ha
F	2,1 l/ha	D	2,1 l/ha
K	3,1 l/ha	G	3,1 l/ha
0	4,1 l/ha	K	4,2 l/ha

#### Flexomant Two

Spray	/ hood 110cm	Spray hood 80cm		
Α	1,6 l/ha	В	2,5 l/ha	
С	1,9 l/ha	D	3,0 l/ha	
F	2,5 l/ha	F	3,5 l/ha	
Н	3,0 l/ha	Н	4,2 l/ha	

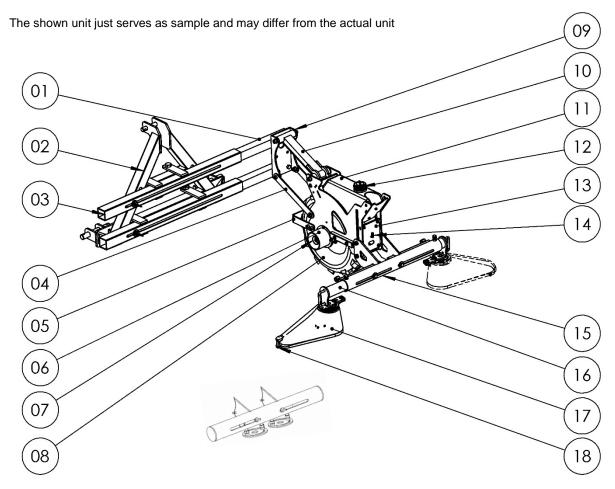
#### **Assembly**

- 1. Mount the spraying system on the vehicle.
- Connect electrical plug 12 V-with the socket of the vehicle. Please check the vehicle polarity.
  If the plug is removed, blue lead is (+), brown lead (-).
- 3. Set ground clearance of the spray hood.
- 4. Connect control box with pump unit.
- Check spray width of the atomiser. (see drawing page 3)
- **6.** After checking the output volume (workflow on the right)connect all hoses.

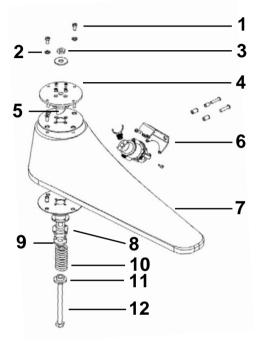
#### Checking the output volume

- Place an underlay (e.g. cardboard or paper) on the ground and prop up the unit on stands.
- 2. Fill the chemical tank with herbicide undiluted.
- 3. Remove the hose from the atomiser and place a measuring cup underneath.
- 4. Open the shut-off valve, initially setting the metering adjustment knob to the maximum flow rate and simultaneously turning the wheel; wait until the chemical solution is evenly applied.
- Set the chemical solution volume according to the output table.
- 6. Volume calibration: Collect the chemical solution from 50 wheel revolutions into a measuring cup. If the desired volume is not reached, set a larger or a smaller volume with the pump metering adjustment knob.
- 7. Perform volume calibration again.
- 8. Reconnect the hose on the lower side of the flow rate control.
- 9. The unit is now ready for deployment.

## Flexomant

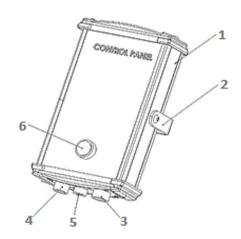


Item	Part-No.	Description	
1	106109	Frame extension, right	
1	106108	Frame extension, left	
2	106107	3-point hitch cat. I-III heavy	
3	106632	Boom bracket for 3-point hitch	
4		Lower bar, parallelogram, Flexomant 2016	
5		Protection strap, wheel unit, Flexomant 2016	
6		Pump protector, Flexomant 2016	
7	100492	Metering pump MAFEX-3/1, capacity 2 - 20 ml/min	
7	100527	Metering pump MANKAR-GP/TWO 3/2, 5 - 12 ml/min	
8		Wheel, Flexomant 2016	
9		Mounting plate parallelogram, Flexomant 2016	
10 Upper bar, parallelogram, Flexomant 2016		Upper bar, parallelogram, Flexomant 2016	
11	104281	Tank 3 L for Mankar-Roll without mounting parts	
12	103320	Bottle lid for 0,5 litre reservoir with breather	
13		Flexomant, Main frame 2016	
14	104140	3-way ball valve Mankar-Roll	
15	105600	Spray boom "VARIMANT"	
16	105675	Ausleger Varimant 30cm -Standard- ( Vers. 2015)	
17	104021	Spray hood 40 cm, compl. with guard bracket, left	
17	104022	Spray hood 40 cm, compl. with guard bracket, right	
18	104023	Spray hood 55 cm, compl. with guard bracket, left	
18	104024	Spray hood 55 cm, compl. with guard bracket, right	
19	106103	Spray boom "UNIMA"	



#### Item Part No. Description

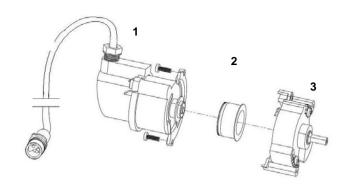
1	103467	Filister head screw M 6 x 12 mm VA with Allen head	
2	101868	Washer M6, Ø6.4 mm, 3D VA	
3	103428	Nut, pressed, M10, hexagonal, VA	
4	104740	Rotary disc, spray hood Mankar-Roll	
5	104311	Mounting bush, rotary-joint Mankar-Roll	
6	104810	Atomiser bracket, spray hood Mankar-Roll	
7	104855	Spray hood 55 cm Mankar-Roll without atomiser	
	104840	Spray hood 40 cm Mankar-Roll without atomiser	
	104824	Spray hood 25 cm, left Mankar-Roll without atomiser	
	104825	Spray hood 25 cm, right Mankar-Roll without atomiser	
8	104313	Intermediate bush, rotary-joint Mankar-Roll	
9	104315	Spring retainer for pressure spring Mankar-Roll	
10	104314	Pressure spring, rotary-joint Mankar-Roll	
11	104315	Spring retainer for pressure spring Mankar-Roll	
12	104316	Bolt, Allen key 10 x 130 mm, VA Mankar-Roll	
	2 3 4 5 6 7 8 9 10	2 101868 3 103428 4 104740 5 104311 6 104810 7 104855 104840 104824 104825 8 104313 9 104315 10 104314 11 104315	



#### Item Part No. Description

# 106067 Control box with switches ONE, DC/DC for FLEXOMANT 106068 Control box with switches TWO, DC/DC for FLEXOMANT

1	103479	Aluminum housing
2	104959	Bracket for control box MAFEX 2010
3	102731	Socket (AMP) 9-pol
4	100121	Screwed cable gland PG 7, plastic
5	100365	Fuse holder complete MINI-MANTRA / MANKAR / FLEXOMANT /
6	102974	Pressure switch, green light, (round) for MANTRA and MANKAR
7	103831	Cover (AMP) for aluminum housing



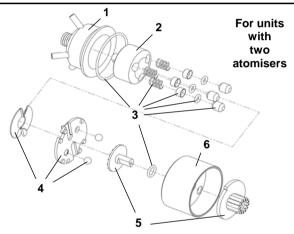
#### Item Part No. Description

#### 103824 Atomiser for MANKAR-TWO Flex

1	103825	Motor-module for atomiser MANKAR-TWO Flex
2	100478 Atomiser disc for segment atomiser	
3	101996	Segment-module for segmental atomiser incl. width adjustments

#### 103947 Atomiser for MANKAR, One-S, Two-S, Flex

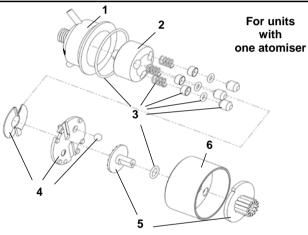
1 103946 Motor-Modul for atomizer MANKAR, One-S, Two-S





100527 Metering pump MANKAR-3, capacity 5 - 12 ml/min for MANKAR-110 GP

1	100528	Pump housing for two-channel pump Metering pump MANKAR
2	102209	Rotor-3, chromed brass for piston pump MAFEX/MANKAR
3	102373	Sealing set for metering pump MANKAR-3/MAFEX-3
4	101626	Repair set, metering pump MANKAR, pressure plate/wobble plate
5	102429	Repair set, metering pump MANKAR, metering adustment knop/ selectordisc
6	100534	Cover for piston pump MAFEX/MANKAR



Item Part No. Description

#### 100492 Metering pump MAFEX-3, capacity 2 - 20 ml/min

	1	100493	Pump housing for single-channel pump Metering pump MAFEX
	2	102209	Rotor-3, chromed brass for piston pump MAFEX/MANKAR
	3	102373	Sealing set for metering pump MANKAR-3/MAFEX-3
	4	102436	Repair set, metering pump MAFEX, pressure plate/wobble plate
	5	102437	Repair set, metering pump MAFEX, selector/adustment knop
Ξ	6	100534	Cover for piston pump MAFEX/MANKAR

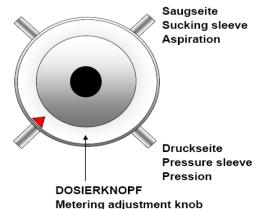
Dosierpumpe MANKAR Metering pump MANKAR Pompe doseuse MANKAR

Druckseite Pressure sleeve Pression

Saugseite

Aspiration

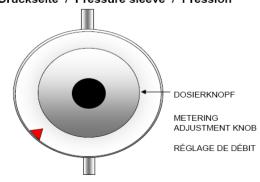
Sucking sleeve



Réglage de débit

Dosierpumpe MAFEX Metering pump MAFEX Pompe doseuse MAFEX

Druckseite / Pressure sleeve / Pression

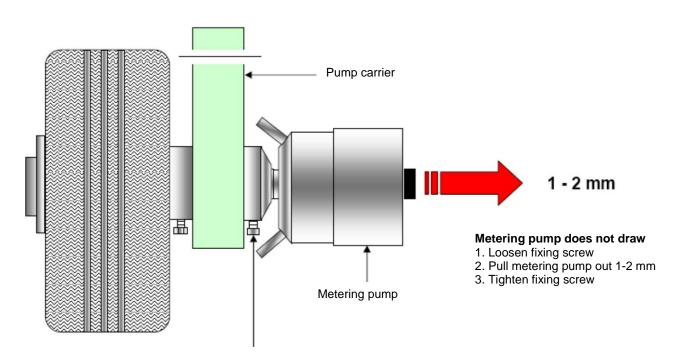


Saugseite Sucking sleeve Aspiration

#### **Troubleshooting**

Fault	Cause	Rectification
Atomiser disc does not rotate	Atomiser contaminated	Thoroughly clean atomiser, remove plant parts as necessary
	Battery empty	Charge battery
	Fuse blown	Replace fuse on power pack (Replacement fuses are located in the power pack housing)
	No electrical contact	Check cable and connector contacts
	Battery faulty	Install new battery
	Atomiser motor faulty	Install new motor
		Connect the brown cable to Plus (+).
Atomiser spray one-sided	Incorrect width setting	Undo screws (F, see page 3) and adjust the width setting to the left or right
Atomiser drips	Metering valve incorrectly adjusted Atomiser disc faulty/contaminated Atomiser spray discharge contaminated	Check setting, see table Replace/clean disc Clean
Atomiser foams	Residual water in the system	Completely empty tank, hose and segmental atomiser.
Air in hose	Hose connection not airtight	Shorten the hose slightly and fit it on the hose nipple.

## Metering pump does not draw



Clamping bush fixing screw

### **EG-Declaration of conformity** Council Directive 2006/42/EG

Mantis ULV-Sprühgeräte GmbH, Vierlander Straße 11 a, 21502 Geesthacht declare under our sole responsibility that the following products are in conformity with the provisions of the following Council Directive: 2006/42/EG

**FLEXOMANT** Тур

> Hiske Weissmann Managing Director

Geesthacht January 2017

(Place and date of signature)

(Name, title and signature)