ECOSYL™

Miniflow S & MB Applicators

DESCRIPTION

The Miniflow S Applicator is designed for use either with a conventional big round baler (using 2 nozzles) or a trailed forage harvester (using 1 or 2 nozzles). The Miniflow MB Applicator has a single nozzle and has been developed specially for use with mini haylage balers where the small bale size (less than 50kg) and slow baling speed mean that much lower flow rates are required. Both applicators have proved to be thoroughly reliable in use and are usually supplied for use with a 200 litre drum but are also available for use with 25 litre cans (special order).

SUPPLIED

1. Submersible motor/pump unit – 12v DC supply
2. Fully variable electronic Control Box (3 amp fuse)
3. Miniflow S - 2 nozzle bodies and 6 sizes of nozzles
   Miniflow MB - 1 nozzle body and 4 sizes of nozzles
4. 10 metres PVC tubing (int. Ø ⅜ inch)
5. 10 metres electric cable - supplied in one length to be cut as required
6. T-piece (Miniflow S only)

FITTING

The applicator operates from the tractor electrical system, which must have a 12v DC supply. It is important to ensure that maximum output is being produced by the tractor, otherwise pump output will be reduced and damage to the applicator may result.

1. Fit the pump unit into an upright 200 litre plastic drum placed as required on the harvester or tractor.
2. Fit the nozzles bodies in suitable positions, eg one nozzle in the chute or two across the pickup. Measure the distance from the pump to the nozzle body and cut the tubing to the required length. If using two nozzle bodies, cut the tubing and use the T-piece to join them together and to the pump.
3. Fit the control box in an easily accessible place in the tractor cab.
4. Connect the bullet connectors to the pump motor (red to red, black to black).
5. Measure the distance from the applicator to the control box and cut the electric cable to the required length. Attach the bare ends of the cable to the 'pump' end of the control box (red to red +ve, black to black -ve).
6. Connect the remaining length of cable to the 'battery' end of the control box (red to red +ve, black to black -ve).
7. Fasten the crocodile clips to the battery (red to positive, black to negative).

WARNING: IT IS ESSENTIAL TO ENSURE THAT THE BATTERY LEADS ARE CONNECTED TO THE END OF THE CONTROL BOX MARKED 'BATTERY' AS WRONG CONNECTION WILL CAUSE DAMAGE.

CONTROL BOX

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The applicator is controlled from the tractor cab using the control box. Switch the unit ON then turn the variable SPEED-knob to adjust the flow rate (see Calibration Chart).

The control box is protected from overload by a 3 amp fuse. This fuse must never be replaced by any other size or type of fuse or serious damage could occur, either to the applicator or to the tractor's electrical circuits.

FLOWMETER (Optional Extra)

This should be mounted in a convenient position outside the tractor cab but easily visible to the operator. It is graduated from 1 to 10, the setting being indicated by the position of the float against this scale. The flow is from the bottom to the top so the tubing from the pump is attached to the bottom and the tube to the nozzle to the top.

OPERATION

1. Select the correct nozzle size from the Calibration Chart and fit into the nozzle body - ensure a tight fit. Check the PVC tubing for damage and kinks and that the connections are secure and the right way round **(never run the pump in reverse)**.
2. Make sure there is some additive in the barrel **(never run the pump dry).**
3. Switch the pump to ON at the control box and adjust the variable SPEED knob to give the required flow rate (see Calibration Chart)

OUTPUT

The Miniflow applicator is capable of up to 3.5 litres/min (open flow) provided the electrical supply is adequate. Attachment of tubing, flowmeter, nozzle bodies or nozzles will reduce this.

SAFETY

1. Do not change filters or nozzles while the tractor or harvester/baler is running.
2. Switch the pump to OFF before changing barrels.

MAINTENANCE

1. Always flush out the system with clean water after use.
2. Never allow the pump to stand for long storage periods while filled with additive.
3. Store in a clean, dry place.
4. Never use a higher rated fuse.
5. Do not allow the tubing to become kinked.

CALCULATING THE FLOW RATE REQUIRED

Measure the time taken to fill a trailer. **Only include actual pick-up time, not time taken turning, etc.**

Calculate the flow rate required as follows:

1. Harvest rate (tonnes/min) = $\frac{\text{weight of grass (tonnes)}}{\text{time to fill trailer (mins)}}$
2. Flow rate (litres/min) = harvest rate (tonnes/min) x required application rate (litres/tonne)

CHOOSING THE CORRECT NOZZLES AND CONTROL BOX SETTING

Choose the flow rate in the table below that is closest to the flow rate determined above. Then read off the nozzle size (Hypro Flat Fan 110° nozzle) and control box setting needed to maintain the correct flow rate. For example, to achieve a flow rate of 1.50 litres/min will require a single Light Blue nozzle and the control box set at 6.

NB. This table is intended as a guide only. These optimum rates can be affected by a poor power supply, an overlong power supply cable or delivery tube, a kinked or dirty delivery tube and dirty nozzles. You should always check the flow rate yourself.

Flow Rate (litres/min) – 1 nozzle

Control Box Setting	1 Hypro Flat Fan Nozzle				
	Blue (VP110-03)	Brown (VP110-05)	Light Blue (F110-10)	Black (F110-20)	LP150*
3	0.38	0.67	1.00	1.37	1.88
4	0.52	0.75	1.25	1.58	2.13
5	0.55	0.86	1.37	1.77	2.3
6	0.63	0.97	1.50	2.00	2.48
7	0.68	1.07	1.58	2.13	2.72
8	0.73	1.35	1.75	2.40	3.15

* LP nozzles are available on request (from Selmech Supplies)

MiniFlow S Applicator Calibration

for forage harvesters - using two nozzles

CALCULATING THE FLOW RATE REQUIRED

Measure the time taken to fill a trailer or make a bale. **Only include actual pick-up time, not time taken turning, etc.**

Calculate the flow rate required as follows:

1. Harvest rate (tonnes/min) = $\frac{\text{weight of grass (tonnes)}}{\text{time to fill trailer or make bale (mins)}}$
2. Flow rate (litres/min) = harvest rate (tonnes/min) x required application rate (litres/tonne)

CHOOSING THE CORRECT NOZZLES AND CONTROL BOX SETTING

Choose the flow rate in the table below that is closest to the flow rate determined above. Then read off the nozzle size (Hypro Flat Fan 110° nozzle) and control box setting needed to maintain the correct flow rate. For example, to achieve a flow rate of 1.5 litres/min will require 2 Brown jets and the control box set at 8.

NB. This table is intended as a guide only. These optimum rates can be affected by a poor power supply, an overlong power supply cable or delivery tube, a kinked or dirty delivery tube and dirty nozzles. You should always check the flow rate yourself.

Flow Rate (litres/min) – 2 nozzles

Control Box Setting	2 Hypro Flat Fan Nozzles				
	Yellow (VP110-02)	Blue (VP110-03)	Brown (VP110-05	Grey (VP110-06)	Light Blue (F110-10)
3	-	-	-	-	-
4	0.45	0.65	1.00	1.55	2.05
5	0.55	0.72	1.15	1.85	2.40
6	0.60	0.85	1.25	2.10	2.70
7	0.65	0.92	1.40	2.22	3.00
8	0.67	1.00	1.50	2.45	3.20

CALCULATING THE FLOW RATE REQUIRED

Find out the average time it takes to make a single bale **(pick-up time only)** and the average bale weight. **Assuming an application rate of 6 litres/tonne (eg DA Ecobale for mini-bales)** use the time and bale weight to determine the flow rate (litres/min) required from Table 1. For example, if a 50 kg bale takes 1 min to make, a flow rate of 0.30 litres/min will be required.

Table 1. Flow rate (litres/min) for application at 6 litres/tonne

Bale Weight (kg)	Time to make one bale (mins:secs)							
	0:20	0:30	0:40	0:50	1:00	1:10	1:20	1:30
20	0.36	0.24	0.18	0.14	0.12	0.10	0.09	0.08
30	0.54	0.36	0.27	0.22	0.18	0.15	0.14	0.12
40	0.72	0.48	0.36	0.29	0.24	0.21	0.18	0.16
50	0.90	0.54	0.45	0.36	0.30	0.26	0.23	0.20
60	1.08	0.72	0.54	0.43	0.36	0.31	0.27	0.24

CHOOSING THE CORRECT NOZZLES AND CONTROL BOX SETTING

Choose the flow rate in table 2 that is closest to the flow rate determined above. Then read off the nozzle size (TeeJet Fan nozzles) and control box setting needed to maintain the correct flow rate. For example, to achieve a flow rate of 0.3 litres/min will a single yellow nozzle and the control box set at 5.

NB. This table is intended as a guide only. These optimum rates can be affected by a poor power supply, an overlong power supply cable or delivery tube, a kinked or dirty delivery tube and dirty nozzles. You should always check the flow rate yourself.

Table 2. Flow Rate (litres/min) – 2 nozzles

Control Box Setting	1 Teejet Fan Nozzle*			
	Orange (01VP)	Green (015VP)	Yellow (02VP)	Blue (03VP)
3	-	-	-	-
4	-	-	-	0.40
5	0.15	0.21	0.30	0.45
6	0.16	0.23	0.31	0.50
7	0.18	0.25	0.32	0.55
8	0.20	0.32	0.35	0.60

* larger nozzles are available (from Selmech Supplies)

TROUBLESHOOTING

Fault	Possible causes	Remedy
Motor not running	Wires incorrectly connected or damaged	Check crocodile clips attached properly to the battery. Check control box wires
	Fuse blown	Replace fuse. Check for reasons blown before restarting
	Defective motor	Contact Selmech
Motor runs but no output	Pump leads wrongly connected	Swop bullet connectors
	Nozzle blocked	Clean nozzle
	Tube kinked	Remove kink & re-route tubing
	Drive shaft disconnected	Check and replace pin in gear
	Drive shaft rotates with motor	Check and replace pin in gear
Motor runs/poor output	Nozzle blocked	Clean nozzle
	Nozzle too small	Replace with larger nozzle
	Tubing kinked	Remove kink and re-route tubing
	Tubing split	Replace tubing
	Drum empty	Fill drum
Wrong application rate	Wrong nozzle size and/or control box setting	Consult calibration chart – NB. Calibration chart gives approximate flow rates only - carry out proper calibration
	Control box malfunctioning	Contact Selmech

WARRANTY

The Miniflow applicator is guaranteed against failure that can be attributed to faulty workmanship for a period of 12 months from the date of delivery provided that only recommended products are being used and the recommended installation and maintenance instructions have been observed. Tampering with the components of the Miniflow applicator will invalidate this guarantee. The applicator manufacturer, Selmech Supplies, reserves the right to change the applicator specifications at any time without notice to allow for improvements or modifications to its designs.

THE WARRANTY IS VOID IF ACID PRODUCTS, EG: FORMIC, PROPIONIC OR SULPHURIC ACID OR THEIR MIXTURES, ARE USED.

REPAIRS & SPARES

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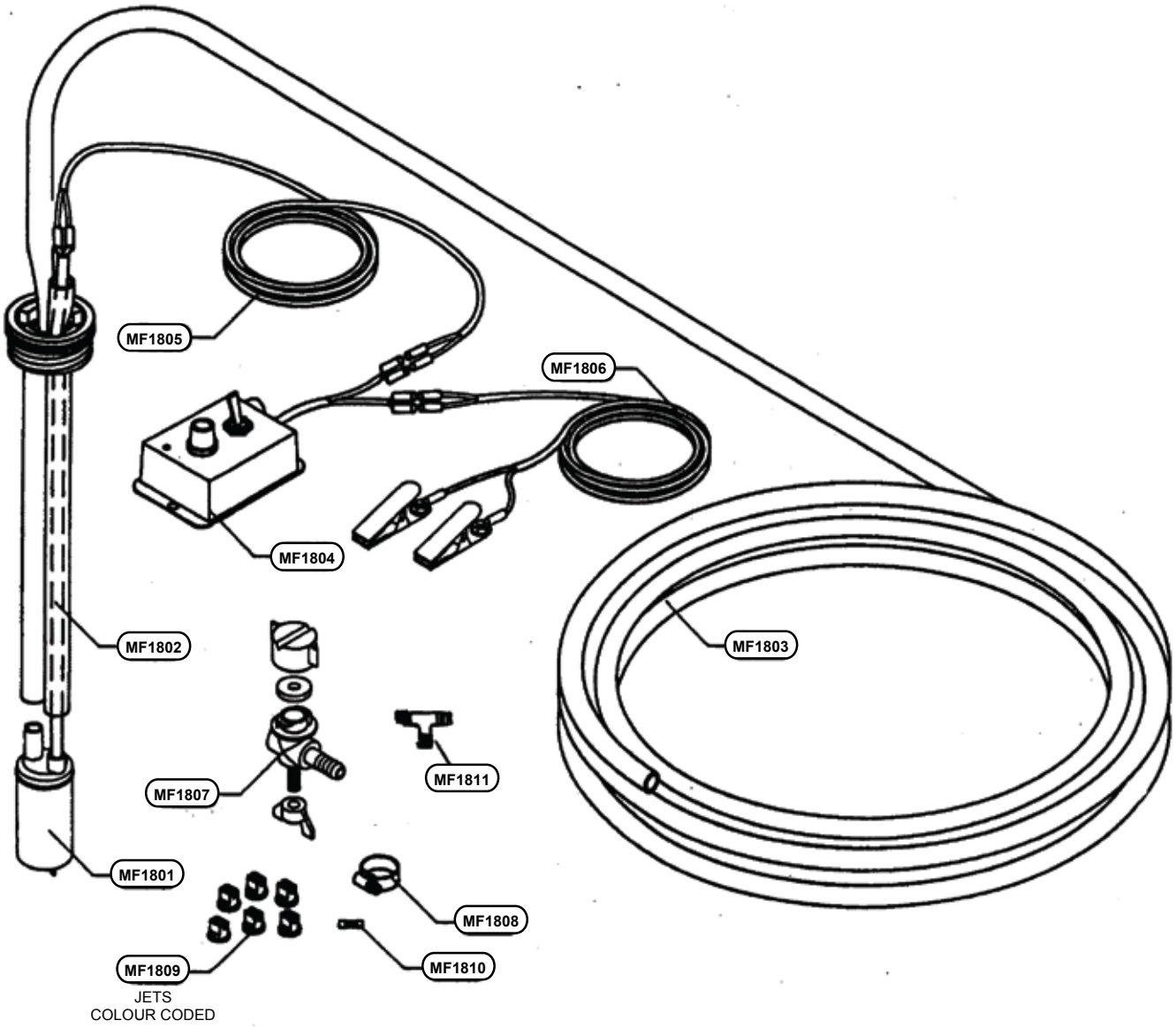

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