

DESCRIPTION

The Ecoflow Applicator is purpose built for application of silage additives and has proved to be thoroughly reliable in use. The highest standards of engineering have been used in its design and manufacture and it is capable of applying additive accurately and efficiently over a wide range of forage harvesting conditions. The Ecoflow S (Standard) is supplied with a single nozzle body and the Ecoflow FW (Forage Wagon) with two nozzle bodies. The Ecoflow H (High Volume) is designed for use with high output self-propelled forage harvesters and will deliver 8 to 15 litres/min openflow (no nozzle).

SUPPLIED

1. Stem motor/pump unit – 12v DC supply
2. Fully variable electronic Control Box with 15 amp fuse
3. Non-return Filter
4. One nozzle body plus 4 nozzles (Ecoflow S) or two nozzle bodies and 5 pairs of nozzles (Ecoflow FW) - other sizes available on request. No nozzles are supplied with the Ecoflow H.
5. 10 metres clear PVC Tubing (int. Ø ½ inch)
6. 10 metres electric cable - supplied in one length to be cut as required
7. Flowmeter (Ecoflow S and FW only)
8. T-piece (Ecoflow FW 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. Ecoflow S – fit the single nozzle body in a suitable position, eg chopping box or chute then measure the distance from the pump to the nozzle body and cut the tubing to the required length.
Ecoflow FW – fit the two nozzle bodies to spray over the whole width of the forage wagon pickup with an overlap in the middle. Cut the tubing to fit and use the T-piece to join the two nozzles together and to the pump.
Ecoflow H – Measure the distance from the pump to the application point and cut the tubing to the required length.
3. Fit the control box in an easily accessible place in the tractor cab.
4. Ecoflow S and FW - Fit the flow meter so it can be seen from the cab. 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 body to the top.
5. Connect the bullet connectors to the pump motor (red to red and black to black).
6. 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).
7. Connect the remaining length of cable to the 'battery' end of the control box and to the power source (red to red +ve, black to black -ve).
8. 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

The applicator is controlled from the tractor cab using the control box. Switch the pump to ON then use the variable SPEED knob to control the flow (see Calibration Chart). The OVERRIDE switch gives instant maximum flow to cope with a sudden increase in the forage throughput.

The control box is protected from overload by a 15 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

This is graduated from 1 to 10. Read the setting from the position of the top of the float against the scale then use the table to give you the actual flow rate in litres/min.

Flowmeter Scale	Output (litres/Min)
1	1.3
2	1.7
3	2.1
4	2.5
5	2.8
6	3.2
7	3.7
8	4.0
9	4.5
10	5.0

OPERATION

1. Select the correct size of nozzle from the Calibration Chart and fit into the nozzle body - ensure it fits tightly. Check the PVC tubing for damage 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 on the control box and adjust the variable SPEED knob to give the required flow rate (see Calibration Chart). For instant maximum flow, switch to OVERRIDE.

OUTPUT

The Ecoflow S and FW are capable of up to 10 litres/minute (open flow) provided the electrical supply is adequate. The Ecoflow H provides an output of 8 to 15 litres/minute (open flow). Attachment of tubing, flowmeter, nozzles, etc will reduce this.

CALIBRATION

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 (Ecoflow S and FW only)

Depending on whether you are using one (Ecoflow S) or two (Ecoflow FW) nozzles, choose the flow rate in the table that is closest to the flow rate determined above. Then read off the nozzle size (Hypro Flat Fan 110° nozzles) and control box setting required to maintain the correct flow rate. For example, to achieve a flow rate of 1.50 litres/min with one nozzle will require a single brown nozzle and the control box set at 5 or two red nozzles and a control box setting of 4.

NB. These tables are intended as a guide only. These optimum rates can be affected by a poor power supply, an overlong power cable or delivery tube, 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)	White (F110-08)	Black (F110-20)
1	-	-	-	-
2	-	-	-	-
3	0.55	0.70	0.90	1.30
4	0.75	1.05	1.40	2.30
5	0.90	1.50	2.00	3.00
6	1.05	1.65	2.50	3.40
7	1.15	1.90	2.75	3.80
8	1.25	2.00	3.00	4.00
9	1.30	2.15	3.20	4.50
10	1.40	2.30	3.30	4.70

* Other nozzles are available from Selmech Supplies

Flow Rate (litres/min) – 2 nozzles

Control Box Setting	2 Hypro Flat Fan nozzles*				
	Yellow (VP110-02)	Red (VP110-04)	Grey (VP110-06)	Light Blue (F110-10)	Black (F110-20)
1	-	-	-	-	-
2	0.40	1.10	1.50	1.70	3.30
3	0.50	1.30	1.90	2.30	4.40
4	0.60	1.50	2.20	2.80	4.90
5	0.70	1.60	2.30	3.20	5.30
6	0.80	1.70	2.50	3.60	5.70
7	0.90	1.80	2.60	4.00	6.00
8	1.00	1.90	2.70	4.20	6.10
9	1.10	2.00	2.80	4.40	6.30
10	1.20	2.10	3.00	4.50	6.40

* Other nozzles are available from Selmech Supplies

Ecoflow H

The Ecoflow H is a high volume pump for used without nozzles.

Flow Rate (litres/min) – No nozzles

Control Box Setting	Flow Rate (Litres/min)	Control Box Setting	Flow Rate (Litres/min)
1	-	6	17
2	8	7	18
3	10	8	19
4	14	9	19.5
5	16	10	20

SAFETY

1. Do not change filters or nozzles while the tractor or harvester is running.
2. Switch off the pump 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.
6. Do not invert the pump as this may cause additive to enter the motor unit.

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	Suction filter blocked	Clean filter
	Anti-drip filter in nozzle body blocked	Remove from nozzle and clean
	Nozzle blocked	Clean nozzle
	Nozzle too small	Replace with larger nozzle
	Tubing kinked	Remove kink & 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 flowrates only – carry out proper calibration
	Control box malfunctioning	Contact Selmech

WARRANTY

The Ecoflow 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 Ecoflow 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 APPLICATOR CAN BE USED FOR FORMIC OR PROPIONIC ACIDS BUT THE WARRANTY IS VOID IF PRODUCTS CONTAINING SULPHURIC ACID ARE USED.

REPAIRS & SPARES

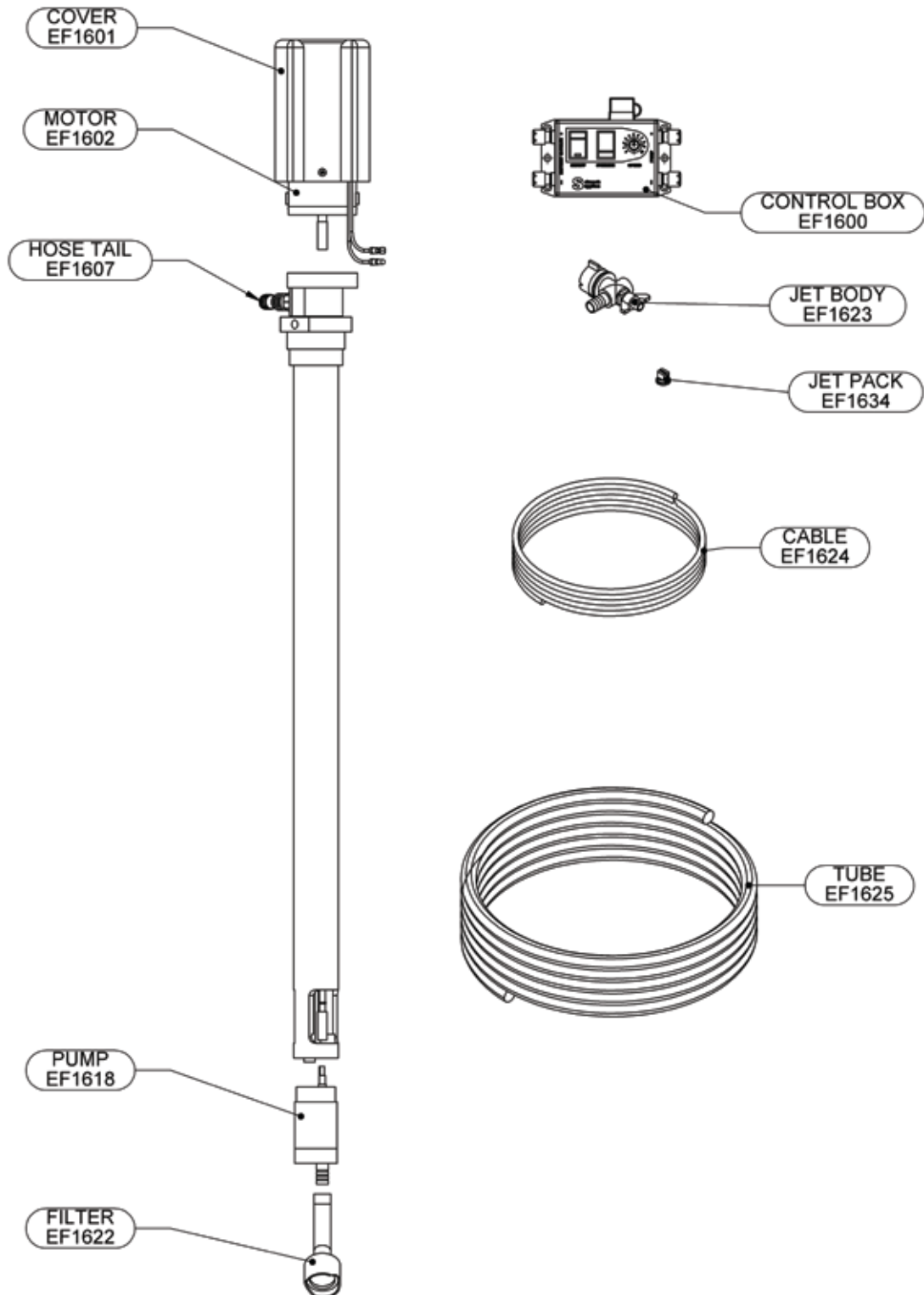
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For more information on 'Eco' Applicators contact:



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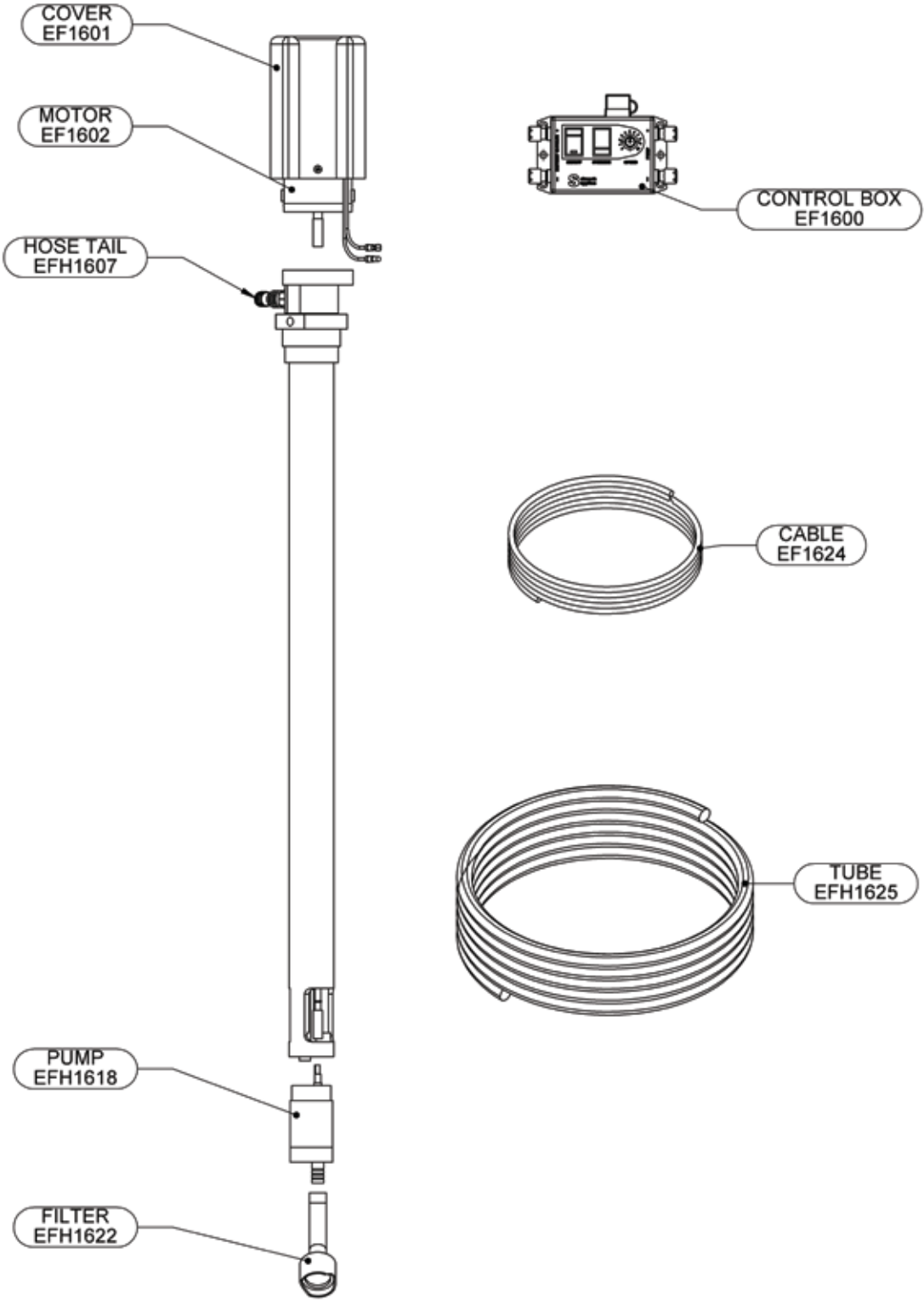
Ecoflow S & FW Applicators



SPARE PARTS AVAILABLE FROM

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Ecoflow H Applicator



SPARE PARTS AVAILABLE FROM

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