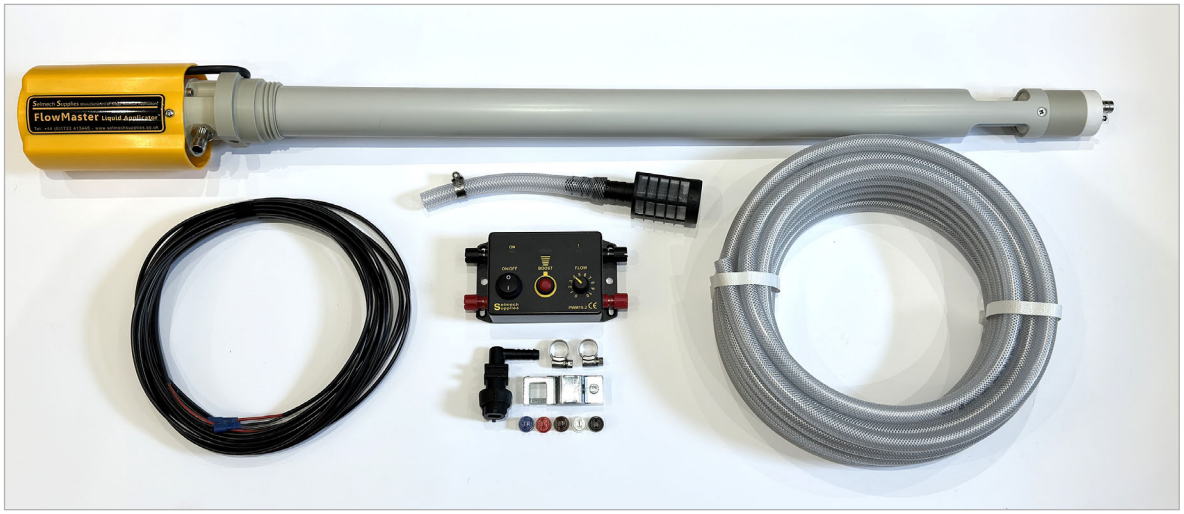
LV FlowMaster

Forage Additive Applicator

User Guide



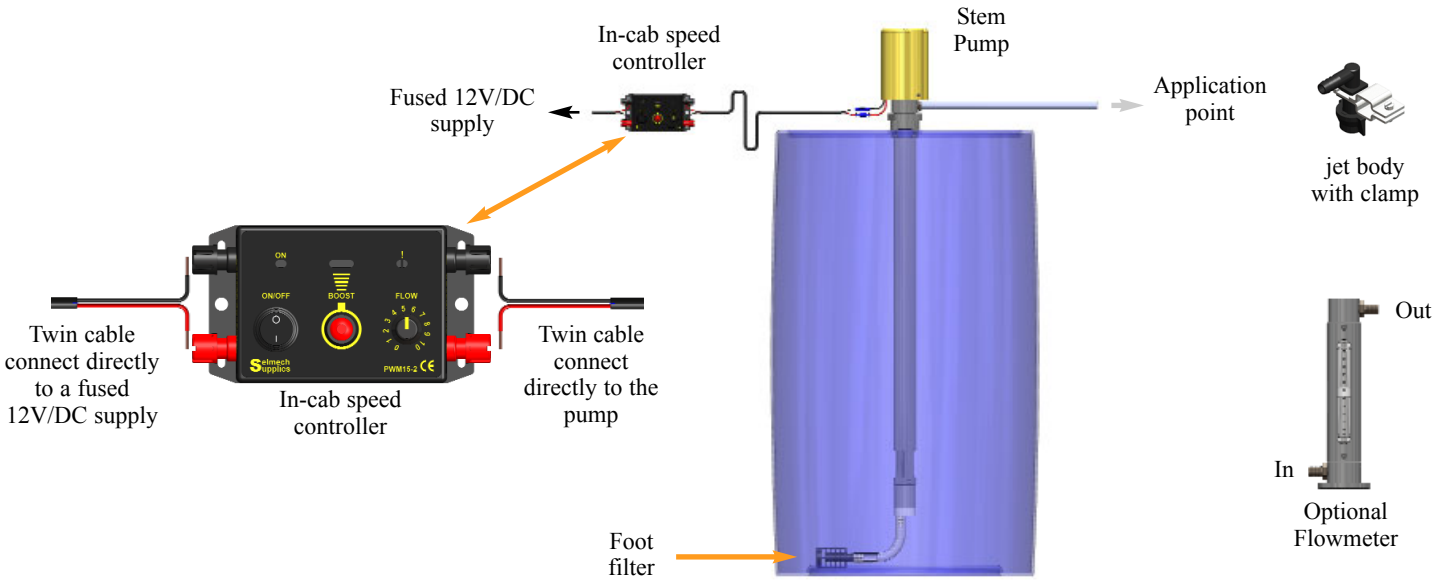
Supplied

In-cab speed controller (Control Box)
Flowmaster stem pump
Foot filter
10 meters of tubing (to be cut to required lengths)
10 meters of cable (to be cut to required lengths)
Jet pack with a selection of nozzles

Setting up the Flowmaster (Refer to the assembly schematic)

The Flowmaster additive applicator is typically used to apply preservative to home grown forage lifted with a self propelled or trailed forage harvester, forage wagon or baler. Your setup may vary depending on the machine you are fitting it to but the connections will be the same.

Power is supplied from the tractor's fused 12 volt DC supply. It is important to ensure that all electrical connection are clean and secure. Poor connections and long cables can reduce output and make it inconsistant.



Mounting the Pump

Use the Jubilee clips provided to secure tubing on to the hose tails.

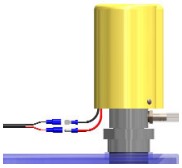
1. Attach the foot filter to the inlet hose tail of the pump and mount the stem pump securely upright in the additive container.
2. If using a Flowmeter mount it in a suitable location for easy viewing.
3. Work out and cut to length the tubing required to connect the pump to the application point. If fitting a Flowmeter take that into account. Avoid hot spots and pinch points. Keep it as short as possible to help maintain a consistent flow.

Application point

The application point will depend on your machine. For a forage harvester this could be open flow behind the accelerator or over the feed rollers through a fan jet. Fitting to a forage wagon or baler the application should be delivered through a minimum of 2 fan jets either over the pick-up reel or transfer rotor. If using the Flowmaster on forage wagons and balers an Anti-siphoning solenoid may be required to stop siphoning.

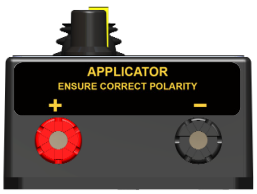
Connecting to the in-cab speed controller (control box)

1. Mount the control box in an accessible location in the vehicle cab.
2. Using the cable supplied connect the blue spade and bullet connector end to the pump. Work out the length of cable required to connect this to the control box and cut it at that point. Route it to avoid hot spots and pinch points.



2. At the cut end carefully strip the cable sleeve back 50mm to leave RED and BLACK tails. Strip the ends about 10mm and twist the bare ends.

3. Connect these bare ends RED + and BLACK - to the "APPLICATOR" terminals on the control box.



!Ensure correct polarity as damage to the control box and or pump will occur if this is not correct.

4. Cut the remaining cable to the length required to connect the "12V/DC SUPPLY" terminals of the control box to a fused 12-volt DC supply in the vehicle. Route the cable to avoid hot spots and pinch points.

5. Repeat step 2 for this cable.

6. Connect the bare ends RED + and BLACK - from supply to the "12V/DC SUPPLY" side terminals of the control box. !Ensure correct polarity as damage to the control box and or pump will occur if this is not correct.

7. Connect to your fused 12 volt DC supply. If using a "D" plug check the polarity is correct in this RED + and BLACK -. !The connection to your supply should be secure and clean and the correct polarity.

Finally

Always ensure correct polarity before turning the control box on.

Operating the Flowmaster

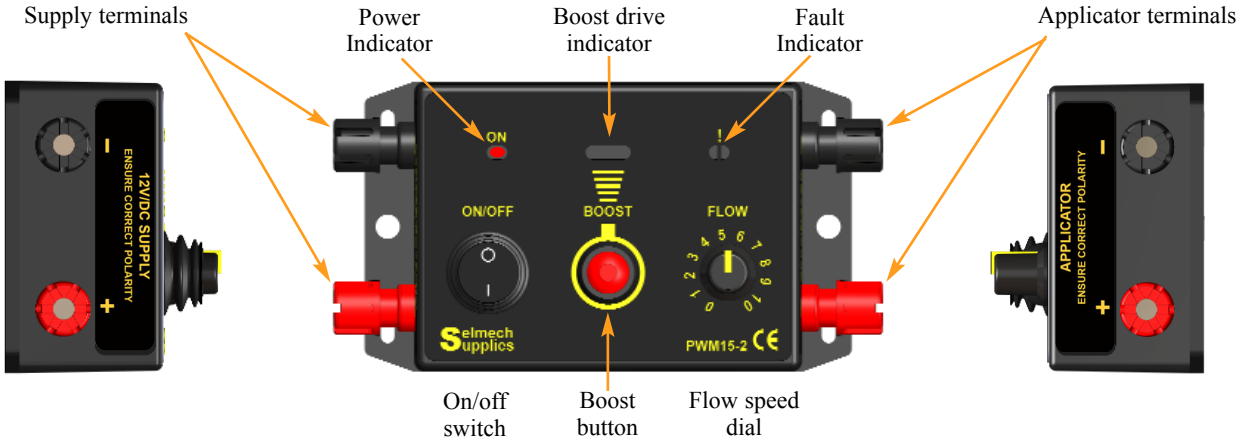
In-cab speed controller (control box)

Use the flow speed dial to adjust and set the application rate. If there is extra heavy crop or an area of crop that has a higher moisture content the boost button can be pressed and released to run the pump at full speed for 10 seconds. The Boost indicator will illuminate when in this mode. To stop boost sooner press the button again. This can be repeated as often as required.

The "**!**" fault indicator warns of a power supply problem (*refer to Fault Diagnosis*).

Connect the control box directly to a fused 12-volt DC supply via the red and black terminals marked "12V/DC SUPPLY". Connect the applicator directly to the terminals marked "APPLICATOR". **!** Always ensure correct polarity before turning the control box on.

DO NOT connect the two negative terminals together. DO NOT connect the pump negative to the ground of the tractor



Calculate your application rate (This guide can be used for forage harvesters, forage wagons and balers.)

It is important to know the application rate per tonne of your additive. This should be provided by the supplier of your additive.

1. Work out how many tonnes per hour (t/hr) of forage is being treated. (example: - 120 t/hr)
2. Multiply that by the litres per tonne (l/t) of additive to be applied. (example: - 1 l/t x 120 t/hr = 120 l/hr)
3. Divide that by 60 to give you the application rate in litres per minute (l/m). (example: - 120 l/t / 60 = 2.0 l/m)
4. Refer to the calibration chart and use this figure to set the flow speed dial on the control box or if using a Flowmeter refer to the calibration chart for that and set the drive to match that.

For Your Figures

Tonnes of forage to be treated per hour	x	Additive application rate per tonne	=	Litres of additive per hour	/	Divide by 60 to convert to minutes	=	Litres of additive to be applied per minute
120	x	1	=	120	/	2	=	2.0
	x		=		/		=	
	x		=		/		=	

Jet Selection

If using, correct jet selection is important to the performance of the applicator. Each jet provides a 110 degree spray pattern and it is important to use the correct jet to achieve the optimum spray pattern for the output required . If using multiple jets and the spray is only coming out of one jet, fit smaller jets to increase the pressure. If the jet is too small the required output will not be achieved.

Setting the application rate

Refer to the calibration guide and set the flow speed dial on the control box to the number relating to your calculated application rate.

If using a Flowmeter refer to the calibration chart supplied with that.

Adjust the flow speed dial to align the top of the weight to the number on the scale that relates to you calculated application rate.

LV Single Jet Calibration Guide

	Single Jet in Litres per Minute				
Control box setting	Blue	Red	Brown	White	Black
3	0.45	0.5	0.65	1.2	2
4	0.5	0.7	0.8	1.3	2.4
5	0.55	0.75	0.9	1.5	2.7
6	0.6	0.8	0.95	1.6	2.9
7	0.62	0.85	1	1.8	3
8	0.65	0.9	1.05	1.9	3.05
9	0.68	0.92	1.1	2	3.1
10	0.7	0.95	1.15	2.1	3.2

LV Twin Jet Calibration Guide

	Twin Jet in Litres per Minute			
Control box setting	Yellow	Red	Grey	Black
3	-	1.1	1.5	2.8
4	0.5	1.3	1.7	3.5
5	0.6	1.5	1.8	3.8
6	0.7	1.6	2	4
7	0.8	1.65	2.1	4.1
8	0.9	1.7	2.2	4.2
9	1	1.75	2.3	4.3
10	1.1	1.8	2.4	4.4

The calibration guide assumes that the electrical supply is adequate. Poor connections and long cables can reduce the drive voltage to the pump.

! ALWAYS do your own calibration check with the additive your are using.

Attachment of tubing, Flowmeter, spray jets, etc. will reduce the final output.

Monitor the flow

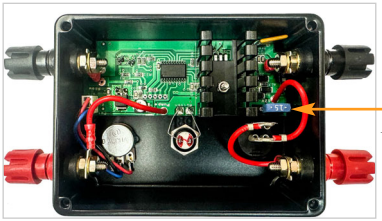
Continue to monitor the flow and adjust the control box if necessary to maintain the correct output.

Safety

1. Read and follow any warnings or guidance supplied with the additive.
2. Wear protective clothing when handling additive or any pump that is being used with additive.
3. Switch off the pump before removing from the barrels or removing tubing, nozzles or filters.
4. Do not contaminate skin, clothing, ponds or waterways with additive.
5. Do not allow the tubing to become kinked or blocked.
6. Never use a higher rated fuse than the one fitted.
7. Make sure all electrical connections are clean, secure and of the correct polarity before turning on the control box.
8. This pump SHOULD ONLY be used for spraying liquids recommended by the suppliers. DO NOT use with SULPHURIC ACID or DIESEL..

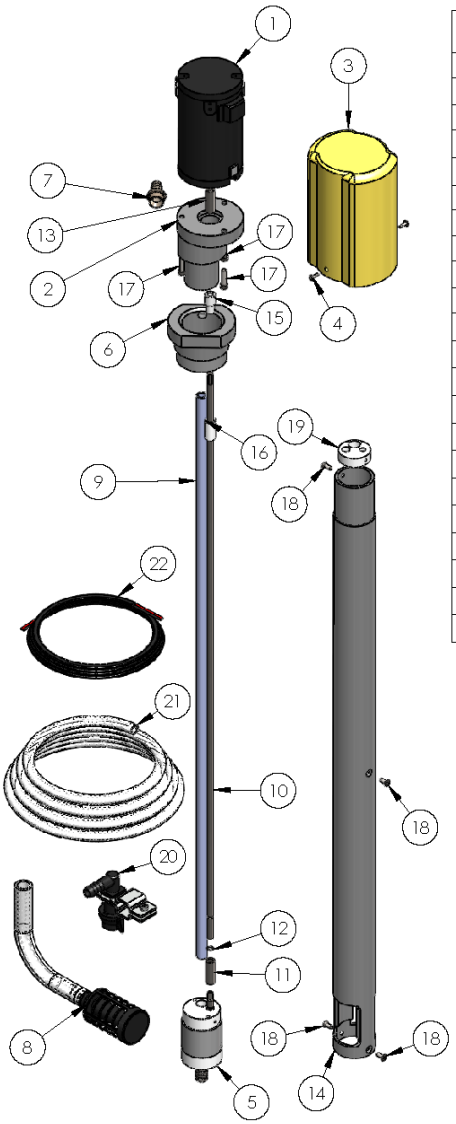
Maintenance

1. Always flush out the system with clean water after use.
2. Store in a clean dry place with the motor end upright.
3. Never allow the pump to stand for long periods while filled with additive.

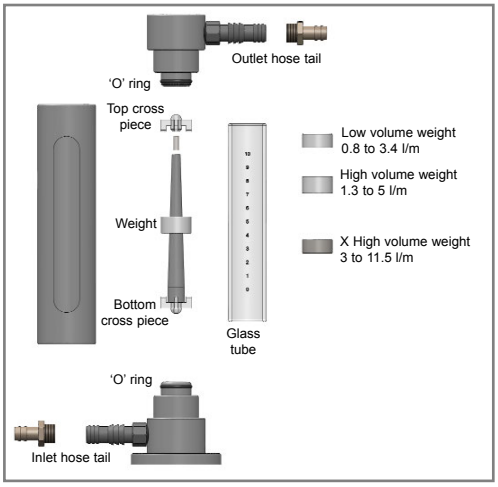


15 AMP fuse
Mini Blade type

Pump Parts Diagram

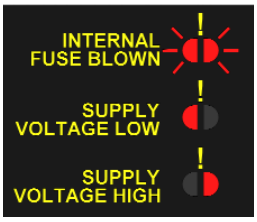


ITEM NO.	PartNo	DESCRIPTION	QTY.
1	SS12	Flowmaster motor	1
2	MME	Motor mounting eccentric	1
3	SSX50	Flowmaster motor cover	1
4	-	NO8X12mm p/hd SS self tapping screw	2
5	SS26	Gear pump unit low volume	1
6	-	Barrel nut	1
7	SSX34A	LV hose tail	1
8	SSX113	Foot filter	1
9	SSX209	Delivery tube	1
10	SSX8	Drive shaft	1
11	SSX13	Drive shaft gear pump coupling sleeve	1
12	SSX8a	Drive shaft 'O' ring	1
13	SSX26	Motor coupler	1
14	-	Flowmaster support tube	1
15	-	Labyrinth seal male	1
16	-	Labyrinth seal female	1
17	-	M5 x 20 SS skt cap screw	3
18	-	No8 x 12mm SS csk self tapping screw	4
19	-	Centre bearing	1
20	SSX16	Single jet pack with selection of jets	1
21	SSX9	10M 3/8 ID tubing	1
22	SSX22	10 metre cable	1



Fault Diagnosis

The control box fault indicator will alert you if there is a problem with the supply or if the internal fuse is blown.



If the internal fuse has blown check for reasons why this may have happened before replacing and turning the control box on. ! Never use a higher fuse than 15 Amps.

If the supply voltage is low check your supply and all connections. ! Could be caused by inadequate cable or poor connections.

If the supply voltage is high. ! Could be caused by faulty tractor regulator or unregulated power supply.

Fault	Diagnosis	Remedy
Motor will not run	Fuse blown	Check the internal control box fuse and for reasons why it has blown before replacing.
	Supply Low voltage indicator illuminated	Check supply and wiring connections
	Wires incorrectly connected or damaged	Check the wiring is connected correctly
	Seized or damaged motor	Contact Selmech
Motor runs but poor or no output	Pump leads incorrectly connected causing the pump to run backwards	Connect leads correctly. This could have damaged the in cab speed controller and/or the pump.
	Foot filter blocked	Clean foot filter
	Tubing kinked or split	Check tubing/remove kink and re-route tubing
	Jet blocked or wrong size jet	Clean jet or fit bigger jet
	Drive shaft disconnected	Make sure the drive shaft connector sleeve is in place and retained by the rubber o ring
	Barrel level low or empty	Refill barrel
Pump Siphoning	Application point below tank	Move application point or fit anti-siphoning solenoid valve

WARRANTY

Provided installation is carried according to these instructions a warranty of 1 year from date of delivery applies. This covers faulty manufacture only and does not cover wear and tear through normal use or mechanical or chemical damage that has occurred to parts through misuse or unauthorised attempts to repair the unit. In the case of faulty manufacture, claims are limited to repair of the unit and its return to the customer.