SDP Tank Kit

Manufactured by
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USER MANUAL

The kit consists of: -

Die cast in cab control box
175, or 250 litre Tank with filter basket
Tilting mounting bracket
Diaphragm pump
In-line filters
3 way valve
10 metres of tubing
10 metre Power cable
1m drain tube

WARNING
This pump SHOULD ONLY be used for spraying liquids recommended by the suppliers.
DO NOT use with SULPHURIC ACID or DIESEL.

Tank shown is the 250 litre option.

The applicator tank

The tank is translucent so the level of additive can be seen. Level guide stickers at the front of the tank show approximately how many litres of liquid are in the tank. These can be viewed from the front and the side.

The pump assembly is housed in the pump chamber. This has a stainless steel cover fitted to prevent the ingress of water and dust. The applicator should not be used, other than for testing with this removed.

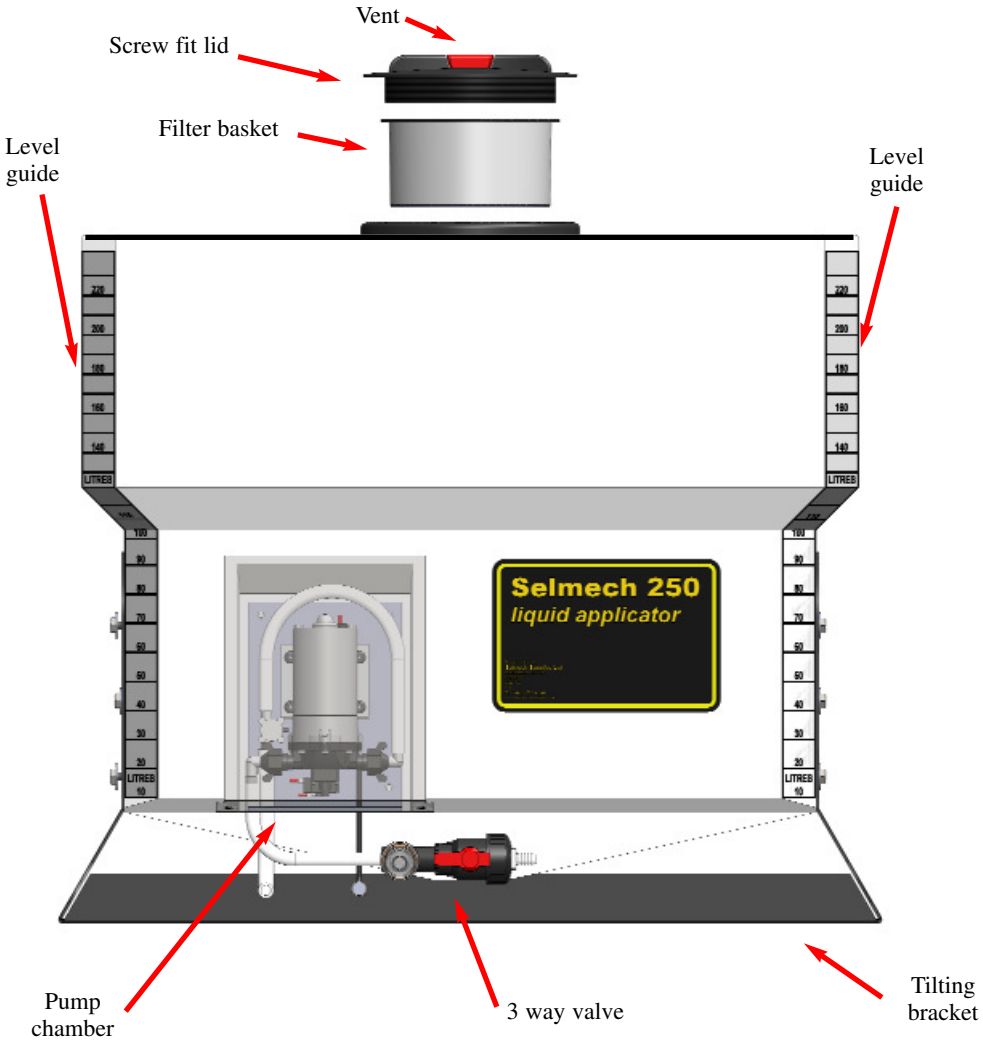
There is a 3 way valve at the bottom of the tank and its operating handle will point in the direction of flow.

When turned to the left, flow from is the tank to the pump. (Run position)

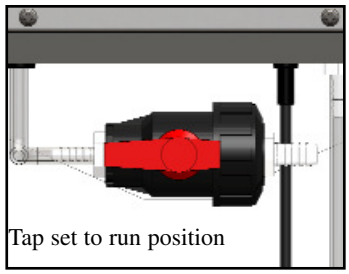
When turned to the right, liquid can be drained from the tank.

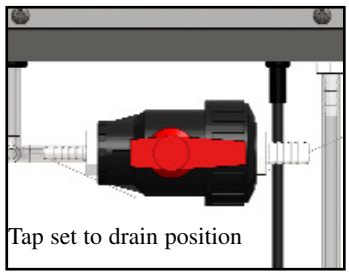
When in the upright position flow is stopped.

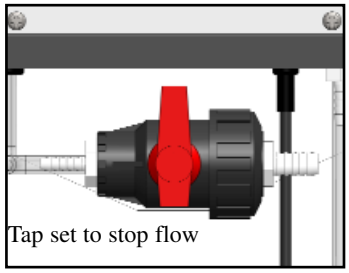
There is a 200mm opening at the top of the tank with a screw fit lid with vent. In the neck of the tank is a removable filter basket, always keep this in place when filling to prevent debris from entering the tank.



3 way valve


Tap set to run position


Tap set to drain position


Tap set to stop flow

Mounting the applicator

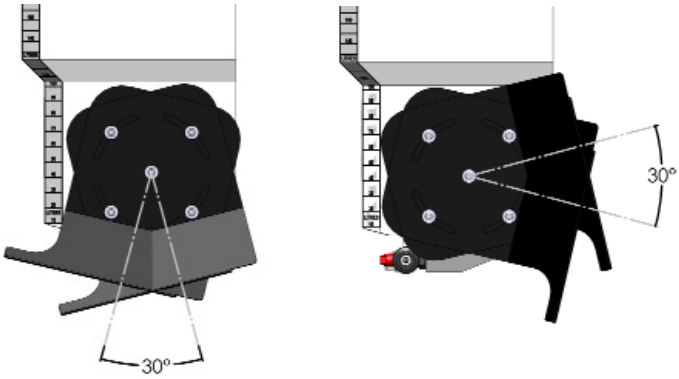
Mount the tank upright using the steel mounting brackets, this can be attached in the horizontal positions or vertical position depending on how you want to mount the tank on to your forage harvester or wagon. The brackets are held in place with M10 x 12 bolts. The tank can be fitted in the bracket over a 30 degree radius to allow it to be mounted upright on an angle surface.

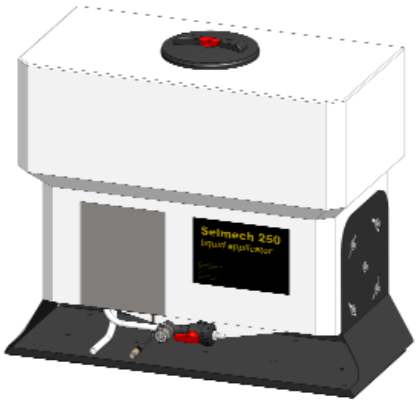
! Always ensure the mounting surface is secure, spans the full width of the bracket and will support the weight of the tank when full. (300kg)

Mounting bracket positioning options

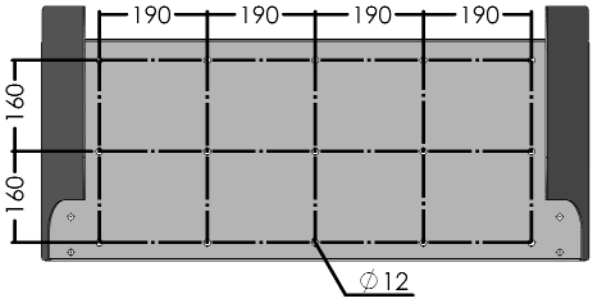
Tilting bracket

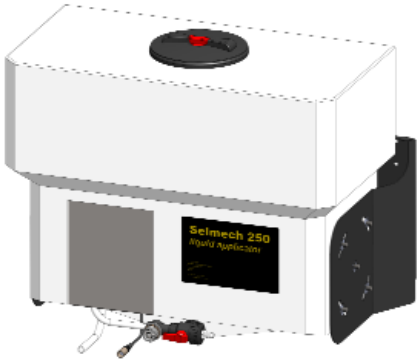
The mounting bracket tilts and can be switched to give multiple mounting positions





Mounting holes





CONNECTING THE PVC HOSE

The pump is self priming and is secured into the pump chamber on a mounting plate held in place by 4off M6 x 16mm screws The pump is secured to the mounting plate with 4 off 30mm No. 10 self tapping screws through the rubber mounting feet.

The pressure switch on the pump **SHOULD NOT** be adjusted under normal circumstances. Small degrees of movement on the grub screw will alter the cut out pressure considerably and consequently may lead to application problems.

The Optional Flowmeter, if supplied, should be fixed to a place within sight of the driver (but not within the cab).

There is one length of braided PVC hose which should be cut to suitable lengths to connect to the bottom hose tail of the Flowmeter (if supplied) and then from the top hose tail of the Flowmeter to application point.

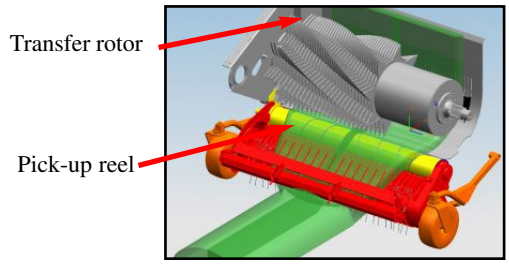
Application point

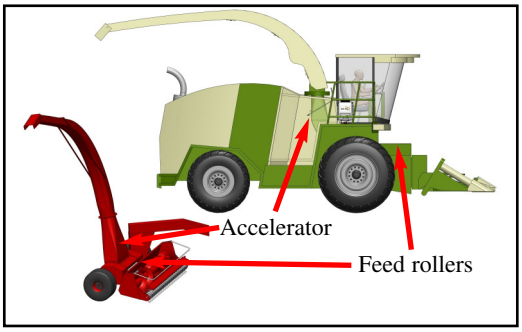
The application point will depend on the machine you are fitting to. Typically for a forage harvester this would be the base of the chute behind the accelerator or over the feed rollers. Delivery of the additive can be open flow, or through a fan jet. Please note that the if application point is at the back of the blower of a self propelled harvester NO spray jet should be used as it would block easily - application should be open flow)

If fitting to forage wagon or baler the application is normally delivered through 2, 3 or 4 jets either over the transfer rotor or over the pick-up reel.

Route the tubing from pump housing to the application point. Avoid sharp edges and hot spots and leave enough slack around and pivot points for turning.

Application point





CONNECTING TO THE POWER SOURCE

The Variable Speed Controller should be fitted in a convenient position in the cab.

10m 28.03 twin core cable is supplied; (extending this will incur voltage loss, a higher rating cable should be used if longer length is required).

As the positions of the power source (battery or tractor power socket) and the pump relative to the switch are unknown, the cable has been left for the user to cut to the required lengths, but is supplied ready for connection to the pump and with crocodile clips attached. Cut the cable to suit the position of the controller.

Slit the sheath for approximately 50mm and bare 6mm of wire.

Insert the bared wires of the pump cable into the input terminals on the controller.

Insert the bared wires of the supply cable into the output terminals on the controller.

NOTE; Take care to insert the BLACK wires into the terminal marked - in both cases.

Connect the BATTERY side of the control box to a suitable fused power source in of the tractor. *Note! We do not recommend using cigarette lighter sockets.*

Control Box Connection

DO NOT connect the two negative terminals together.

DO NOT connect the pump negative to the ground of the tractor

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Single jet application

CALIBRATION

1. The actual application rate should be determined by pumping the preservative into a measuring vessel for a given period of time. It is then possible to calculate the application rate per hour or per tonne of treated material. (This process is necessary even when the flowmeter is used because of the effect of different viscosities of various liquid.) Care should be taken to prevent splashing during this calibration procedure. Protective goggles and gloves should be worn.

2. The variable speed controller enables fine adjustments to be made and protects the pump motor at low rates.

Please Note *- different additives have different densities and viscosities, therefore have different flow rates*

Calculating the application rate for forage harvester

Measure the time taken to fill a trailer. Only include actual loading time, not time taken turning,etc.

The flow rate can be calculated using the following formulae: -

1) harvest rate (tonnes/min) = weight of grass (tonnes) divided by time to fill trailer (mins)

2) flow rate (litres/min) = harvest rate (tonnes/min) x required application rate (litres/tonne)

for example if you collect 2 tonnes of grass in 1 minute your harvest rate = 2 tonnes per minute

if your additive required application rate is 2 litre/tonne you need to apply 4 litres/min

Choosing the correct jet and control box setting

Choose the flow rate in the table below which is closest to the flow rate calculated above. Then read off the jet size (colour coded) and control box setting needed to maintain the correct flow rate.

CALIBRATION CHART for forage harvesters (guidance only)

	SINGLE JET litres per minute				
Control Box Setting	Yellow	Blue	Brown	Light Blue	Black
3	0.45	0.60	1.10	1.55	2.40
4	0.75	0.80	1.60	2.7	3.9
5	0.85	1.00	1.90	3.50	4.70
6	0.86	1.20	1.95	3.80	5.30
7		1.25	2.00	3.90	5.60
8			2.05		5.80
9					6.1
10					6.2

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Twin jet application

CALIBRATION

1. The actual application rate should be determined by pumping the preservative into a measuring vessel for a given period of time. It is then possible to calculate the application rate per hour or per tonne treated material. (This process is necessary even when the flowmeter is used because of the effect of different viscosities of various liquid.) Care should be taken to prevent splashing during this calibration procedure. Protective goggles and gloves should be worn.

2. The variable speed controller enables fine adjustments to be made and protects the pump motor at low rates.

Please Note *- different additives have different densities and viscosities, therefore have different flow rates*

Calculating the application rate for bales

Measure the time taken to make a bale. Only include the actual baling time not the turning, tying, net wrapping etc. If possible weigh a selection of bales to establish the average weight.

The flow rate required can be calculated by the following formula: -

1) harvest rate (tonnes/min) = weight of bale (tonnes) divided by time to make 1 bale (mins)

2) flow rate (litres/min) = time to make 1 bale (tonnes/min) X required application rate (litres/tonne)

For example if you make a 1 tonne bale in 1 minute your baling rate = 1 tonne per minute

If your additive required application rate is 2 litre/tonne you need to apply 2 litres/min

Choosing the correct jet and control box setting

Choose the flow rate in the table below which is closest to the flow rate calculated above. Then read off the jet size (colour coded) and control box setting needed to maintain the correct flow rate.

SDP-100 CALIBRATION CHART for Balers (guidance only)

	TWIN JET litres per minute			
Control Box Setting	Yellow	Brown	Grey	Light Blue
3	1.05	1.60	1.75	2.80
4	1.50	1.80	2.40	3.80
5	1.55	1.90	2.65	4.70
6	1.60	1.95	2.90	5.00
7	1.65	2.00	3.20	5.55
8	1.70	2.05	3.40	
9		2.10	3.80	
10			4.10	

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APPLICATOR CARE

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

Cleaning the Strainer

The strainer should be cleaned at the end of each season or if a blockage is suspected.

1. Unscrew filter assembly from pump
2. Unscrewing the clear bowl and removed the filter gauss.
3. Clean the gauss, body and bowl in clean water
4. Re-assemble and re-fit.

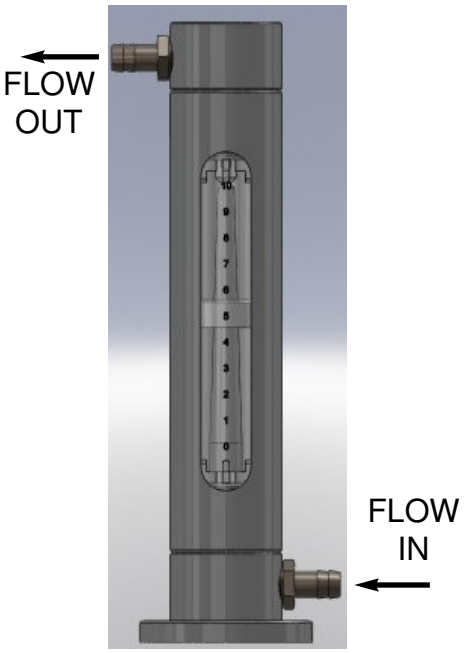
OPTIONAL EXTRA - if supplied

Low Volume Flowmeter

FLOWMETER SCALE	OUTPUT (litres/min)
1	0.8
2	1
3	1.2
4	1.5
5	1.7
6	2
7	2.3
8	2.6
9	3
10	3.4

High Volume Flowmeter

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



Diaphragm Pump

TROUBLESHOOTING

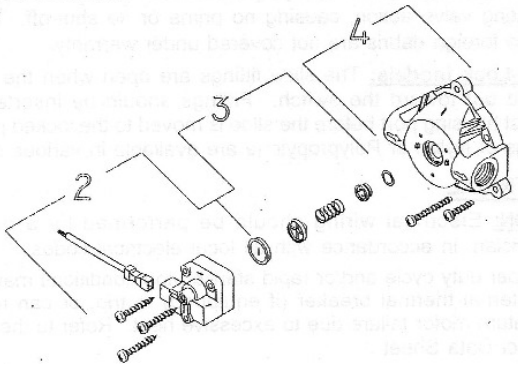
PUMP WILL NOT START:
- ✓ Fuse or breaker
- ✓ For correct voltage (±10%) and electrical connections
- ✓ Pressure switch operation and correct voltage at switch or motor wires (as equipped).
- ✓ Rectifier or motor for open or grounded circuit
- ✓ For locked drive assembly

WILL NOT PRIME: (No discharge/motor runs)
- ✓ Out of product
- ✓ Strainer for debris
- ✓ Inlet tubing/plumbing; severe vacuum leak
- ✓ Inlet/Outlet tube severely restricted (kinked)
- ✓ Debris in pump inlet/outlet valves
- ✓ Proper voltage with the pump operating (±10%)
- ✓ Pump housing for cracks

LEAKS FROM PUMP HEAD OR SWITCH:
- ✓ For loose screws at switch or pump head.
- ✓ Switch diaphragm ruptured or pinched
- ✓ For punctured diaphragm if fluid is present at bottom drain holes.

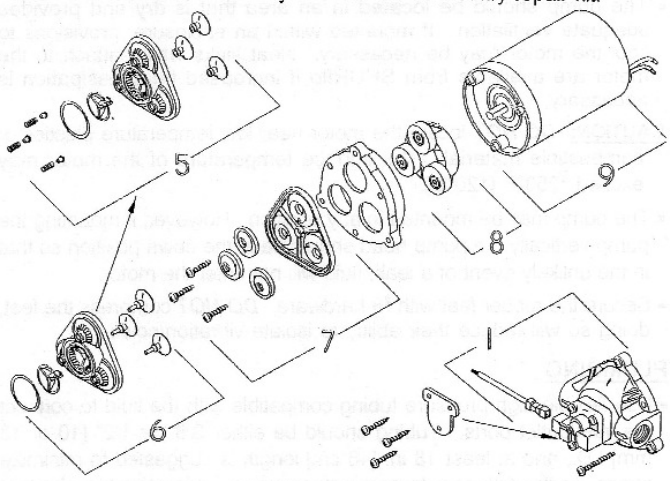
PUMP WILL NOT SHUT-OFF:
(Pressure switch equip.)
- ✓ Output line closed and no leaks
- ✓ For air trapped in outlet line or pump head
- ✓ For correct voltage to pump (±10%)
- ✓ Inlet/Outlet valves for debris or swelling
- ✓ For loose drive assembly or pump head screws
- ✓ Pressure switch operation/adjustment incorrect refer to S/B #1031 for differential and pressure adjustment procedure

NOISY / ROUGH OPERATION:
- ✓ Mounting feet that are compressed to tight
- ✓ For loose pump head or drive screws
- ✓ Does the mounting surface multiply noise (flexible)
- ✓ Is the pump plumbed with rigid pipe causing noise to transmit



SERVICE KITS

Kits are readily available to repair standard 8000 series pumps. Repair kits include simple illustrated instructions allowing easy installation. To insure that the correct kit is received the model numbered and all name plate data must be included with the order. Contact a SHURflo distributor or SHURflo directly to order the necessary repair kit.



KEY#	DESCRIPTION
1	Complete assembled pump head
2	Pressure switch assembly
3	Check valve components
4	Upper housing
5	Bypass valve and discharge valve assembly
6	Valve plate assembly
7	Diaphragm and piston components
8	Drive assembly
9	Motor assembly (less base plate)

Fault	Diagnosis	Remedy
Motor will not run	Wire incorrectly connected or damaged	Check crocodile clips attached properly to the battery.
		Check control box wires.
	Fuse blow	Replace fuse – check for reasons for blown fuse before restarting.
	Defective motor	Contact Selmech Supplies.
Motor runs but no output	Pump leads wrongly connected	Connect leads correctly
	Jet blocked	Clean jet
	Tubing kinked	Remove kink and re-route tubing troubleshooting
		Refer to Diaphragm Pump
Motor runs but poor output	Strainer blocked	Clean Strainer
	Jet blocked	Clean
	Jet too small	Replace with larger jet
	Tubing kinked	Remove kink and re-route tubing
	Tube split	Replace tube
	Barrel empty	Fill barrel or replace
Wrong application rate		Re-calibrate