Williamson
UK manufacturers of quality peristaltic pumps

Table of contents.

SAFETY, CAUTIONS AND WARNINGS INSTALLATION	1-2
350 VSL CONTROLS AND CONNECTORS AND MATERIALS OF CONSTRUCTION	3
350 VSL SERIES PUMP SPECIFICATIONS	4
OPERATION / TUBING INSTALLATION OPTION AND FLOW RATES	5-6
FUSE REPLACEMENT / ROLLER ASSEMBLY REPLACEMENT PROCEDURES	7
TROUBLESHOOTING / REPLACEMENT PARTS	8

Note: *Every precaution for accuracy has been taken in the preparation of this manual, however, Williamson Manufacturing Co Ltd. neither assumes responsibility for any omissions or errors that may appear nor assumes liability for any damages that result from the use of the products in accordance with the information contained in this manual.*

POTENTIAL RISK OF ELECTRIC SHOCK

Disconnect power cord before moving or disposing of pump.

CAUTION – This Pump Has Been Evaluated with Water Only.

DO NOT use DC motor pump with a damaged or altered power cord or power supply. Contact the factory or an authorized service facility for repair.

WARNING - Risk of electric shock – This pump is supplied with a grounding conductor and grounding-type attachment plug. To reduce the risk of electric shock, be certain that it is connected only to a properly grounded, grounding-type receptacle.

Before installing or servicing the pump, read the pump manual for all safety information and complete instructions. Installation and Product must adhere to all regulatory and compliance codes applicable to the area.

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Safety, Cautions & Warnings.

When changing flow direction, allow the pump to come to a complete stop before starting again. Failure to do so could cause permanent damage to the motor.

Replace the fuse only with one of the same types and rating. The fuse rating and type are stated on the rear panel.

This Pump Has Been Evaluated for Use With Water Only.

To reduce risk of electric shock, pull plug before servicing this pump.

"WARNING": This equipment must be earthed.

"WARNING": "Risk Of Electric Shock – This Pump Has Not Been Investigated For Use In Swimming Pool Or Marine Areas."

Installation.

Before use:

- Voltage and frequency of power supply must be the same as shown on unit specification label.
- The AC power must be Grounded
- WIRING CONNECTIONS: All wiring and electrical connections must comply with local and national electrical codes.
- Enclosure should be either placed on a dry flat surface or mount enclosure to wall using wall mounting hardware provided. The ambient temperature should not exceed 40° C and adequate air flow should be provided for.
- Tubing should be clean and routed so that bend radii are at a minimum four (4) times the tube diameter.
- Use a tube size of appropriate diameter for the flow rate and viscosity required.

CAUTION: Motor life will be drastically reduced if left in the stalled position for extended periods.

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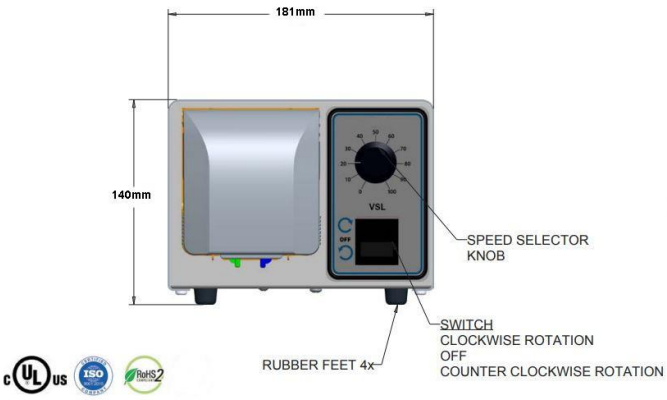
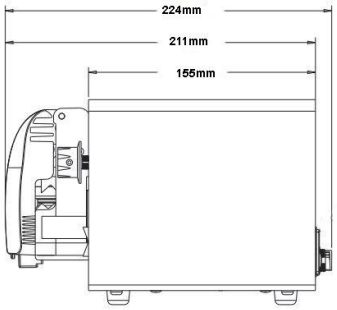
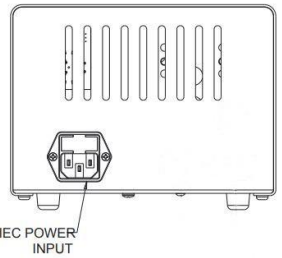
Controls and Connectors.







Materials of Construction.

Materials of Construction	
Enclosure	Powder Coated Steel - IP22 rated
Pump Head	Polycarbonate; IXEF
Rollers	Stainless Steel
Bearings	Sealed Stainless Steel Bearings

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Specifications.

Specifications & Description	
Model Series	350 VSL
Pump Head	350 Series – 4 Roller
Control Type	Variable Speed
Speed Control	+/- 2%
Directional Control	Bi-directional
Motor Type	Brushless DC
Duty Cycle	Continuous
Tube Wall Thicknesses Accepted - Metric	1.6mm (1/16”) & 2.4mm(3/32”)
Tube Bores Accepted – 1.6mm	0.8mm (1/32”) to 7.9mm (5/16”)
Tube Bores Accepted – 2.4mm	0.8mm (1/32”) to 6.4mm (1/46”)
Voltage	100-240V 50/60Hz
Plug type	IEC 320-C13
Max Working Pressure	25 psi
Compliance (US and Canada)	UL778
	FCC Part 15b Class A
	ICES-003, Issue 6: 2016
Compliance (Europe for CE Mark)	EN 55014-1:2006/A12009/A2:2011
	EN 55014-2:2015

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Operation.

Before Inserting Tube:
· WARNINGS: Tubing breakage may result in fluid being sprayed from pump. Use appropriate measures to protect operator and equipment.
· The 350 VSL pump is equipped with a safety switch so that when the front cover is lifted up, the pump stops. Be sure the Pump System is off before removing or installing tubing. Fingers or loose clothing could be caught in the pump mechanism.

Tube Inspection:
· Tubing should be inspected periodically for tears, cracks, cuts, abrasions, inability to pull a vacuum, reduction or loss of flow.
· Tubing life may be extended by periodically repositioning the occluded tubing

Turning Pump On:
· Make sure the speed is set to the minimum setting.
· Push UP on the ON/OFF switch to turn the power ON and run pump clockwise.
· Turn knob clockwise to increase the speed of the pump. The higher the percentage setting, the faster the speed of the pump.
· Push DOWN on the ON/OFF switch to turn the power ON and run pump counter clockwise.
· The Laboratory Drive Units are self-priming. Verify the suction side tubing is submerged into medium being pump.
· Prime the tubing for at least 5 minutes. 15 minutes for stable flow.

CAUTION: When changing flow direction, allow the pump to come to a complete stop before starting again. Failure to do so could cause permanent damage to the motor.

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350 SERIES PUMP HEAD TUBE REPLACEMENT PROCEDURE:

1. Disconnect the suction and discharge tubing from the pump tubing.
2. Simply lift cover, occlusion will lift and release the tubing.
3. Pull tubing out of pump and replace tubing.
4. Close cover completely

Inspect all tubing regularly and replace if any sign of deterioration occurs. Always wear safety glasses and protect clothing when working with chemicals. Pump can run dry without damage.

Flow Rates mL/Min

		Tube Bore					
Model	Settings	8mm*	6mm	5mm	3mm	1.6	0.8
350 VSL	Max.	1860	1310	800	380	93	20
	Min.	95	66	40	20	5	1

* Limited to 1.6mm wall thickness tubing

Flow rates are for guidance only and will be effected by: Tube material, tolerances, age, back pressure & fluid viscocity.

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Fuse Replacement Procedure.

1. Disconnect power to pump.
2. The fuse holder is located on the back of the case.
3. Pull the fuse tray out as shown in photo below.
4. Remove old fuse and replace with the same catagory & rating fuse.
5. Slide fuse tray back in to lock.

Roller Assembly Replacement Procedure.

Roller Assembly may be easily changed out for:
· Different tube wall thicknesses (1.6mm vs 2.4 mm)
· Number of Rollers (3, 4 or 6 Rollers Assemblies)
· Pump cleaning
1. Turn power off to the drive unit and lift the pump cover.
2. Using a 1/16" Allan wrench, remove the 2 screws holding the Bearing Bridge to Housing. (Figure 1)
3. Pull Bearing Bridge and locating pins straight out of Housing. Remove thrust washer. (Figure 2)
4. Remove Roller Assembly by pulling and sliding it off the output shaft. (Figure 3)


Figure 1


Figure 2


Figure 3

5. To install new roller assembly, reverse steps 1 through 4.
6. Push new Roller Bracket onto output shaft. (Figure 4)
7. Replace thrush washer. (Figure 5)
8. Push Bearing Bridge, Guide Pins and Bearing back onto output shaft. (Figure 6)
9. Using an 1/16" Allen head tool, install and tighten the two mounting screws. (Figure 1)


Figure 4


Figure 5


Figure 6

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Trouble Shooting.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Fluid Leaking	Pump tube worn	Replace tubing
	Excessive back pressure	Ensure system pressuredoes not exceed pressure rating
	Tube connections not tight	Ensure tubing connections are properly connected
Tube Life Shortened	Roller bracket assembly worn out	Replace roller bracket assembly
	Check tubing is compatible with roller size. Tubing should be snug but not tight against the rollers	Verify that the correct roller assembly is being used for the correct tube wall thickness
	Fluid is not compatible with tubing material	Check fluid to tube material compatibility
Pump will not start	Blown fuse	Check for blown fuse & replace if necessary
	No Supply	Verify that the unit is plugged into a functioning socket
	IEC plug loose connection	Verify the power cord is firmly attached to IEC receptacle
	Gearbox assembly worn	Replace unit
Unit is on but pump will not turn	Check tubing is compatible with roller size. Tubing should be snug but not tight against the rollers	Verify that the correct roller assembly is being used for the correct tube wall thickness
Pump runs but does not meet rated flow	Pump tube worn	Replace tubing
	Gearbox assembly worn	Replace unit
	Fluid viscosity too high	Reduce viscocity
	Pumping height is too high	Reduce pumping height

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