

# **VL**

## **Venturi Loader**

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Version: Ver.C (English)



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## 1. General Description



Please read this manual carefully before installation and using of the machine to prevent damage or personal injuries.

This series of model mainly uses the accelerated flow of compressed air to generate negative pressure to convey the materials, which is applicable to convey all kinds of plastic particles and it is a reliable feeding system. The high air pressure is 6~8kgf/cm<sup>2</sup>.

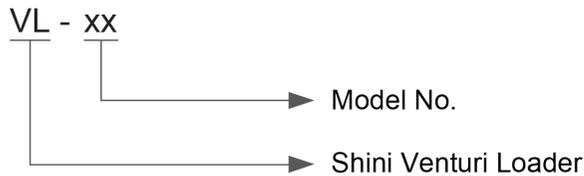


Model: VL-50



Model: VL-100

## 1.1 Coding Principle



## 1.2 Feature

- 1) European Type appearance, compact in size and light-weighted.
- 2) Filtered air exhaust does not pollute environment.
- 3) Silent operation, it uses high-pressure air to convey materials.
- 4) Adopt glass pipe collocated with photosensor to detect the material conveying precisely;
- 5) Quick installation and easy operation with surface polished.
- 6) Easy access to material hopper for convenient cleaning.
- 7) Hopper and base mount positions adjustable.
- 8) Equipped with an online switch, it's convenient to use the machine when it is mounted in high places.

All service work should be carried out by a person with technical training or corresponding professional experience. The manual contains instructions for both handling and servicing. Chapter 6, which contains service instructions intended for service engineers. Other chapters contain instructions for the daily operator.

Any modifications of the machine must be approved by SHINI in order to avoid personal injury and damage to machine. We shall not be liable for any damage caused by unauthorized change of the machine.

Our company provides excellent after-sales service. Should you have any problem during using the machine, please contact the company or the local vendor.

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## 1.3 Safety Regulations

### 1.3.1 Transportation and Storage of the Machine

#### Transportation

- 1) VL series are packed cardboard box.
- 2) Do not rotate the machine and avoid collision with other objects during transportation to prevent improper functioning.
- 3) The structure of the machine is well-balanced, although it should also be handled with care when lifting the machine for fear of falling down.
- 4) The machine and its attached parts can be kept at a temperature from  $-25^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$  for long distance transportation and for a short distance, it can be transported with temperature under  $+70^{\circ}\text{C}$ .

#### Storage

- 1) VL series should be stored indoors with temperature kept from  $5^{\circ}\text{C}$  to  $40^{\circ}\text{C}$  and humidity below 80%.
- 2) Disconnect all power supply and turn off main switch and control switch.
- 3) Keep the whole machine, especially the electrical components away from water to avoid potential troubles caused by the water.
- 4) Plastic film should be used to protect the machine from dust and rains.

#### Working environment

The machine should be operated:

- 1) Indoors in a dry environment with max. temperature  $+45^{\circ}\text{C}$  and humidity no more than 80%.

Do not use the machine:

- 1) If it is with a damaged cord.
- 2) On a wet floor or when it is exposed to rain to avoid electrical shock.
- 3) If it has been dropped or damaged until it is checked or fixed by a qualified serviceman.
- 4) This equipment works normally in the environment with altitude within 3000m.
- 5) At least a clearance of 1m surrounding the equipment is required during Operation. Keep this equipment away from flammable sources at least two meters.

- 6) Avoid vibration, magnetic disturbance at the operation area.

#### Rejected parts disposal

When the equipment has run out its life time and can not be used any more, unplug the power supply and dispose of it properly according to local code.

#### Fire hazard



In case of fire, CO<sub>2</sub> dry powder fire extinguisher should be applied.



Attention!

No need for regular inspection because all the electrical parts in the control unit are fixed tightly!

## 1.4 Exemption Clause

The following statements clarify the responsibilities and regulations born by any buyer or user who purchases products and accessories from Shini (including employees and agents).

Shini is exempted from liability for any costs, fees, claims and losses caused by reasons below:

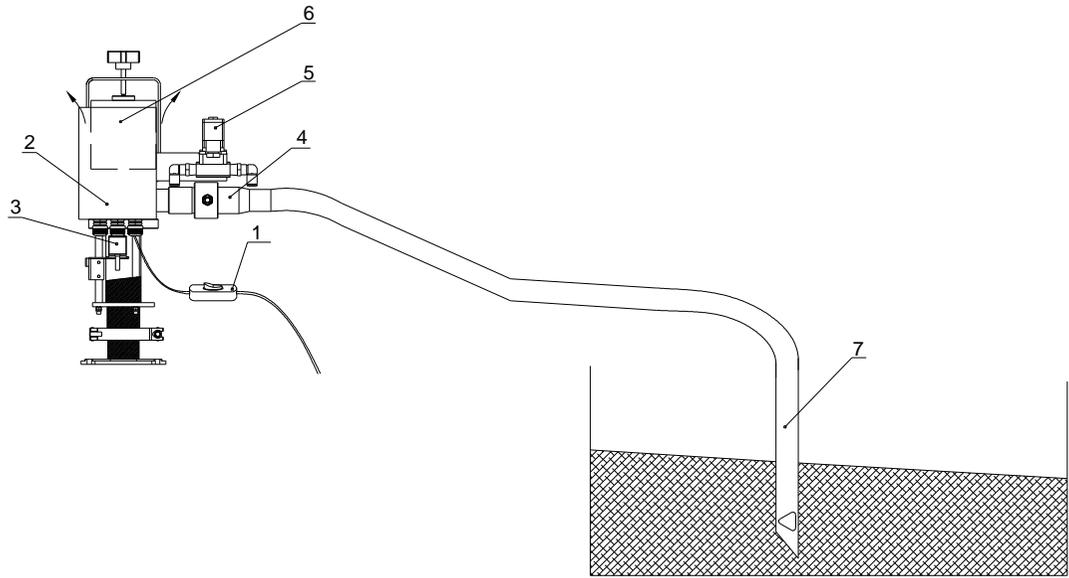
- 1) Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
- 2) Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible natural disasters including fire, flood, storm and earthquake.
- 3) Any operational actions that are not authorized by Shini upon machine, including adding or replacing accessories, dismantling, delivering or repairing.
- 4) Employing consumables or oil media that are not appointed by Shini.

## 2. Structure Characteristics and Working Principle

### 2.1 Working Principle

The Venturi Loader adopts the vacuum generated by the Venturi effect to drive the conveying of various materials, with a high air pressure of 6~8 kgf/cm<sup>2</sup>. The Venturi effect's principle is that when the air blows over an obstruction, the air pressure around its upper port at the back side is relatively lower, thus generating an adsorption effect and causing the airflow.

Press the online switch (1) to power on, the control box (2) supplies the power to the photosensor (3). In case of material shortage, the photosensor (3) lights on, it indicates the shortage signal, which is fed back to the control box (2). The control box (2) controls the solenoid valve (5) to open, and then connects the high pressure air above the solenoid valve (5) to pass through the solenoid valve (5) to reach the suction pipe assembly (4). According to the Venturi effect's principle, the high pressure air generates the reverse high-speed airflow inside the suction pipe assembly (4), which through the suction pipe assembly (4) to connect the steel wire pipe and the material iron pipe (7), thus driving the conveying of various materials. During material suction process, the materials drop under the gravity effect, while the reverse high-speed airflow is discharged through the filter (6). When the materials pass the photosensor's level, it gives full material signal; Photosensor lights off; it feeds back to the control box (2); The control box (2) controls the solenoid valve (5) to close; The high pressure air can't pass through the solenoid valve (5) ; The suction pipe assembly (4) can't generate the high speed airflow; it stops feeding. When the material lowers than the photosensor again, it gives material shortage signal, and then perform above operations continuously. Then, turn off the online switch (1); the machine stop feeding directly.



Picture 2-1: Working Principle

### 3. Installation and Debugging

This series of model can only be used in working plant with good ventilation.

The feeding hopper can be directly installed on the injection molding machine and connected with the suction pipe and high-pressure air pipe. Connect the suction pipe with the dryer or storage hopper's suction box, and then connect the other end of the suction pipe to the hopper. It must use the steel wire pipe, and seal the joining points tightly, and finally connect the power supply.

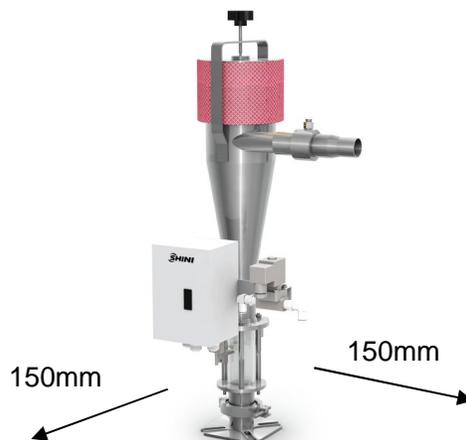
#### 3.1 Installation Space

During installation of the machine, keep at least 150mm installation space around the machine as shown by the picture.

Do not install the machine in a position crowded with other objects. This would cause inconvenience to operation, maintenance and repair.

Do not sit on the machine.

Keep away flammable and explosive goods.



Picture 3-1: Installation Space

#### 3.2 Power Connection

- 1) Make sure the voltage and frequency of the power source comply with those indicated on the manufacturer nameplate that attached to the machine.

- 2) Power cable and earth connection should conform to your local regulations.
- 3) Use independent electrical wires and power switch. Diameter of electrical wire should not be less than those used in the control box.
- 4) The power cable connection terminals should be tightened securely.
- 5) Machine voltage: 1 $\Phi$ 230VAC50Hz.
- 6) Power supply requirements:  
Main power voltage: +/- 5%  
Main power frequency: +/- 2%
- 7) ***Please refer to electrical drawing of each model to get the detailed power supply specifications***

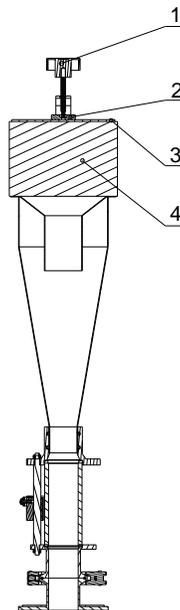
## 4. Trouble-shooting

Failures	Possible Reasons and Solutions
It can't work for a long time.	1. The main switch and control switch don't open or the above two don't connect well.
	2. The sensor has detected an object and it identifies that the hopper is full.
	3. The sensor signal wire is broken.
After multiple suction, the hopper is still lack of materials.	1. The storage tank is empty.
	2. The compressed air pipe has low gas flow.
Poor material liquidity in the pipe	Over or lack of air quantity. Adjust air inlet location of the suction box. Avoid small bending of the elbow.

## 5. Maintenance and Repair

### 5.1 Filter Clean or Maintenance

The filter is located in the material hopper. Clean the filter periodically or when it's feeding capacity decreases. Cleaning steps: Rotate to remove the star handle 1, and then remove the (pressing block) 2 and (filter fixing plate 3); Dismantle filter 4, use an air gun to regularly clean the dust on the filter, and then reinstall the machine as per the reverse order.



Picture 5-1: Filter Cleaning and Maintenance

## 5.2 Maintenance Schedule

### 5.2.1 About the Machine

Model \_\_\_\_\_ SN \_\_\_\_\_ Manufacture date \_\_\_\_\_

Voltage \_\_\_\_\_  $\Phi$  \_\_\_\_\_ V Frequency \_\_\_\_\_ Hz Power \_\_\_\_\_ kW

### 5.2.2 Installation & Inspection

- Check whether the pipe connection is correct.
- Check whether the pipe is locked tightly.
- Check whether the mounting base is locked tightly.

#### Electrical Installation

- Voltage: \_\_\_\_\_ V \_\_\_\_\_ Hz
- Fuse: One-phase: \_\_\_\_\_ A Three-phase: \_\_\_\_\_ A
- Check power phase.

### 5.2.3 Daily Checking

- Check main power switch.
- Check the solenoid valve's working status.

### 5.2.4 Weekly Checking

- Check all the electrical cables.
- Check if there are loose connections of electrical components.
- Check the air filter.

### 5.2.5 Monthly Checking

- Check the photosensor's performance.