SVM-EB

Budget Vertical Mixers

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Version: Ver. B (English)

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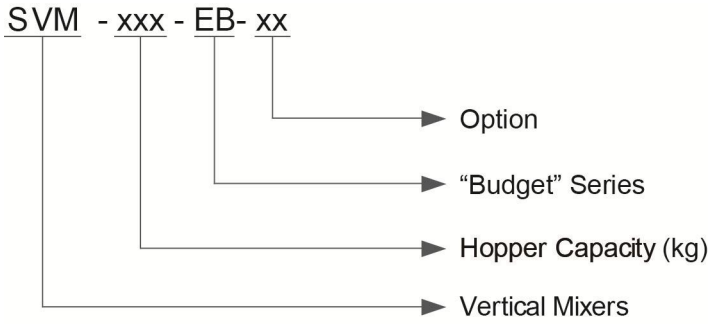
1. General Description

Read this manual before installation and using of the machine to prevent personal injuries and damage of the machine.

SVM series "Standard" vertical mixers are for powder and granule - like materials. They feature simple structure, fast mixing speed, easy for operation, maintenance and cleaning. It is mainly applied in plastic material mixing and also widely used in different industries, such as: powder metallurgy, pottery, chemical industry and food industry. It is an ideal mixing facility with five models, handling capacity ranging from 25 ~ 300kg.

Picture 1-1: Budget Vertical Mixers SVM-100-EB

1.1 Coding Principle



1.2 Feature

- Stainless steel hopper receiver and mixing blade ensure no material contamination and durability.
- Hopper lid has protective device. Stop machine when open the hopper lid to avoid danger caused by miss-operation.
- It equips with motor overload protection to avoid motor overload and burnout.
- Auto stop device is provided, and the auto stop function can be set within 0~60min.

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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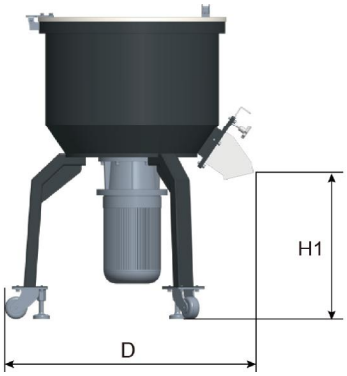
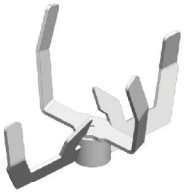
1.3 Technical Specifications

1.3.1 Technical Specifications





Blending Vanes

Picture 1-2: Technical Specifications

1.3.2 Specifications

Table 1-1: Specifications

Model		SVM-25-EB	SVM-50-EB	SVM-100-EB	SVM-150-EB	SVM-200-EB	SVM-300-EB
Motor Power (kW,)		1.1	1.5	3.0	4.0	7.5	11
Max. Throughput (kg/hr)		125	250	500	750	1000	1500
Blending Barrel* (kg)		25	50	100	150	200	300
Dimensions (mm)	H	960	1065	1245	1345	1550	1715
	H1	475	500	557	557	726	800
	D	660	845	1105	1105	1177	1305
	W	860	965	1210	1210	1300	1475
Weight(kg)		90	120	170	250	340	385

Note: 1) " * " means when overloaded, the optimal mixing time is about 10 mins.

We reserve the right to change specifications without prior notice.

2) Maximum noise level is 80dB (A).
3) All output capacities from above models are based on data from bulk density 0.65Kg/L and 2~3 mm in size.
4) Maximum throughput is 5 batches in hourly mixing, with 10mins for each batch, which is calculated by maximum capacity of the hopper.
5) Power supply 3Φ, 400VAC 50Hz.

1.4 Safety Regulations

Strictly abide by the following safety regulations to prevent damage of the machine or personal injuries.

1.4.1 Safety Signs and Labels

All the electrical components should be installed by qualified electricians. Turn off the main switch and control switch during maintenance or repair.

Warning! High voltage!

This sign is attached on the cover of control box!

Warning! Be careful!

Be more careful at the place where this sign appears!

Attention!

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

1.4.2 Transportation and Storage of the Machine

Transportation

1) SVM series vertical batch mixers are packed in crates or plywood cases with wooden pallet at the bottom, suitable for quick positioning by fork lift.
2) After unpacked, castors equipped on the machine can be used for ease of movement.
3) Do not rotate the machine and avoid collision with other objects during transportation to prevent improper functioning.
4) 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.
5) The machine and its attached parts can be kept at a temperature from -25℃ to +55℃ for long distance transportation and for a short distance, it can be transported with temperature under +70℃.

Storage

1) SVM series vertical batch mixers should be stored indoors with temperature kept from 5℃ to 40℃ 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.

The machine should be operated:

1) Indoors in a dry environment with max. temperature +45℃ 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

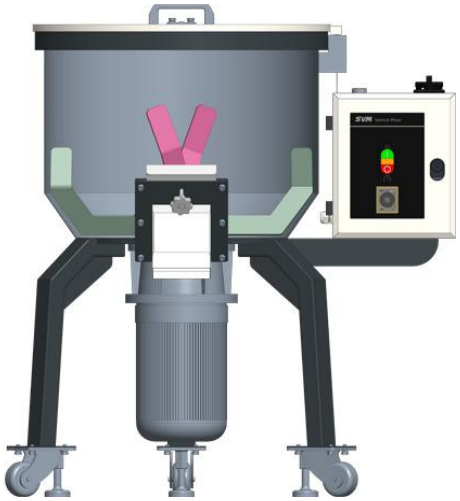
When the equipment has run out its life time and can not be used any more, unplug the power supply and dispose of it properly according to local code.

Fire Hazard

 In case of fire, CO_2 dry powder fire extinguisher should be applied.

2. Structure Characteristics and Working Principle

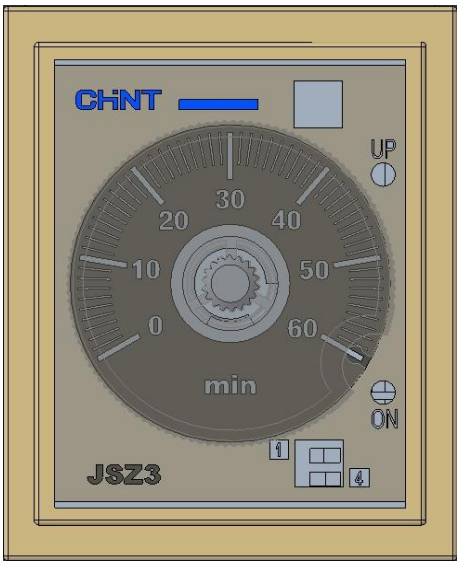
2.1 Working Principle Illustration



Picture 2-1: Working Principle Illustration

Control box sends signal to the motor, and it starts rotating. Motor main shaft drives blades to mix different materials with the rotation, which evenly mix the material in short cycle. When timer of the control box reaches set time, the motor stops. At this time, open the discharge port of the hopper, and discharge the material. Then, the mixing is finished (During the process, if the mixing is overloaded, the buzzer will sound with alarm).

2.1.1 Timer



Picture 2-2: Timer

Function Description:

Rotate the knob and set the corresponding work time (max.: 60 mins.)

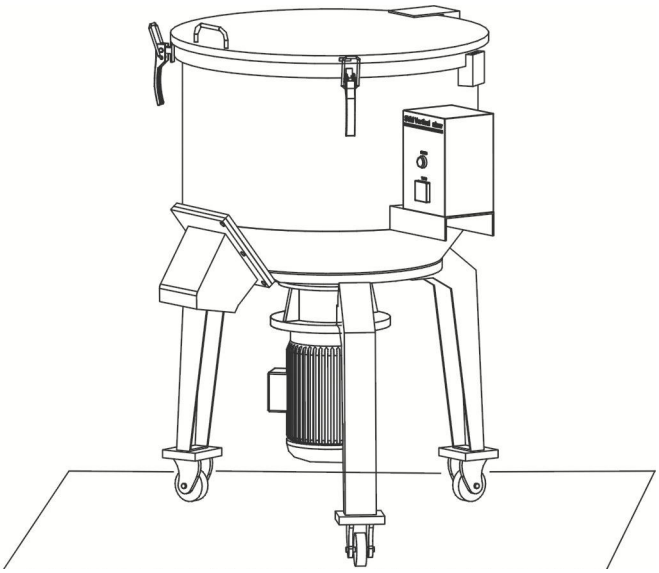
3. Installation and Debugging

Before installation, read this chapter carefully. Install the machine according to following steps!

Power supply of the mixer should be connected by qualified electricians!

3.1 Install the Machine on a Water-level Floor

Place vertical batch mixer on the flat ground, and connect to the three-phase power. Switch the main power switch to the “ON” state, and press the green start button on the control panel. Detect whether the direction of motor operation is the same as arrow. If not, please exchange the position of two live wire.



Picture 3-1: Install the Machine on a Water-level Floor

Vertical batch mixer should be placed on a water-level floor with castors locked, ensuring the machine well-balanced and no vibration.

3.2 Installation Space

Keep at least 500mm space around the machine when installing it. As the following figure shows: Do not install the machine in a narrow space, because this will make it uneasy to repair or maintenance. Do not sit on the top of the machine or place any inflammable objects around the machine.

Picture 3-2: Installation Space

3.3 Installation of Motor

Do not enforce any force on the output parts of decelerate motor or case. Pleases meet the machine and gear motor's respective requirement for concentricity or verticality.

3.4 Installation of Blending Vanes

Pleases meet the blending screw and gear motor's respective requirement for concentricity or verticality when install the machine.

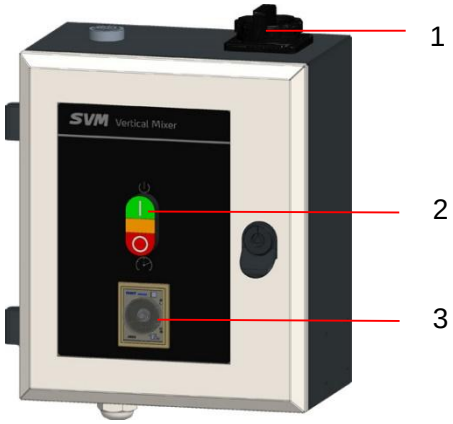
3.5 Power Connection

Connect the control box of the vertical batch mixer to power line and earth wire as indicated by the nameplate. Usually adopts 3Φ400V power supply and it can be also made on customer's special demand.

Check the motor's running direction after connects to power，if it is running reversely，please cut off the power and transpose any two lines of the three lines from the main power.(warning: reverse running is not allowed when the machine is in operation otherwise it will cause obstruction and lead to motor damage)

4. Application and Operation

4.1 Description of Control Panel



Picture 4-1: Description of Control Panel

4.2 Control Panel Description

No.	Name	Function Description	Remarks
1	Main power	Main power switch of the control system.	
2	System run	Start/stop of blending motor.	Red for stop and green for start.
3	Auto-timer	Timer for auto-stop after set material blending time.	When system is turned on, use the timer to set motor blending time after which the machine will stop working automatically.

4.3 Start / Stop of the Machine

1) Check power supply is turned on.
2) Turn on the main switch on control panel.
3) Press the green button to start material blending.
4) Use the red button to stop the machine, and main power switch to cut off power supply.

4.4 Operation Guide

1) Open blending barrel lid, fill in materials.
   Note: material level should not higher than the top opening of the cylinder.
2) Close blending barrel lid, plug in safety switch and fasten the snap hook.
   Note: tightly close the blending barrel lid to secure safety switch, or the machine cannot be started.
3) Turn on main power switch on the control panel.
4) Press the green button on control panel to start the machine.
5) Turn the adjusting scale of the timer if needed to set material blending time. The machine will stop working automatically after set time.
6) Press the stop button to stop material mixing after the material is evenly mixed if the timer is not set for automatic stop.
7) Turn on the green button on the control box to run the motor and open the shut-off plate, and the materials will be automatically discharged after being fully mixed.

4.5 Material Cleaning Method

Use a velvet cleaning cloth to remove material in the mixing tank, leaving remaining material discharged from hopper.

5. Trouble-shooting

Failures	Solutions
After turning on main power and pressing down green system run button, the indicator cannot turn bright, motor does not work.	Check the electrical circuit, the reasons may be: 1. Electrical wire break. 2. Fuse melted 3. The shut-off plate for Blending barrel lid not closed or safety switch not fully connected. 4. Material blending time is set to 0. If motor can work, but indicator cannot turn bright, it shows that the indicator is broken. If indicator turns bright, but motor can not work, this may caused by motor failures or solenoid valve problems.
Press the control button, and the mixer can enter the working status, but it is still working after the set time.	Check the electrical circuit, the reasons may be: 1. The timer is broken. 2. Electrical wire problems.
Overload relay frequently tripping off.	Check the electrical circuit, the reason can be: 1. Adjust overload relay setting current 1.1 times of motor rated current. 2. Wires of solenoid valve short circuit or break. 3. Overload relay is burnt out. 4. Motor problems. 5. Motor runs reversely.
Cannot stop the working of material blending by pressing the stop button.	The contact of stop button may be stuck together. If so, please replace the stop button.
Materials can not be well mixed, although no problems with machine start and stop function.	Material mixing time not enough, increase material mixing time.

6. Maintenance and Repair

6.1 Service

All the repair work should be done by qualified technicians to prevent personal injuries and damage of the machine.

6.2 Maintenance

6.2.1 Maintenance of Blending Motor

Replace the lubricating oil of the gear motor after first 400 hours running. After that, replace the lubricating oil at about every 4000 hours. Check on times that there's enough lubricant in the gear box. Add or replace the lubricant before oil used up or when oil is turned bad. Keep motor and gear box covers clean from dusts or dirt’s for quick cooling.

6.2.2 Maintenance of Blending Barrel and Blending Screw

Disassemble blending barrel lid, motor, blending screw, and control box; use a piece of soft cloth to clean blending barrel from material remains.

Note!

Turn off the main switch and control switch before repairing or maintenance.

6.3 Maintenance Schedule

6.3.1 About the Machine

Model _____ SN _____ Manufacture date _____

Voltage_____Φ_____V Frequency _____ Hz Power _____ kW

6.3.2 Check after Installation

- ☐ Check the machine is installed on a water-level floor.
- ☐ Check the installation of the motor.
- ☐ Check the safety switch of blending barrel.

Electrical Installation

- ☐ Power supply: _____ V _____ Hz
- ☐ Fuse melt current: 1Φ _____ A 3Φ _____ A
- ☐ Check the electrical wire connections of the control.

6.3.3 Daily Checking

/ /
- ☐ Check the main power switch
- ☐ Check system start button
- ☐ Check the safety switch

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6.3.4 Weekly Checking

___/___/___

☐ Check all the electrical wires
☐ Check motor overload protection function

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☐ Check motor overload protection function

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☐ Check all the electrical wires
☐ Check motor overload protection function

6.3.5 Monthly Checking

Replace the lubricating oil of the gear motor after first 400 hours running. After that, replace the lubricating oil at about every 4000 hours. Check on times that there's enough lubricant in the gear box. Add or replace the lubricant before oil is used up or when the oil is turned bad.