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RBLM1100 User Manual

Contents

Chapter 1: Safety Rules

1.1 Preface

This chapter lists the safety rules that must be followed when installing, operating and servicing the RBLM1100 pressure-retaining hot-melt machine, in order to prevent personal injury and damage to the equipment.

1.2 Safety precautions during installation

• Check that the power cable and insulation rating conform to the load requirements of the RBLM1100 and all its auxiliary equipment.
• Confirm that the incoming supply voltage matches the rated voltage of the machine, and that the power cable is correctly connected to the external disconnecting device.
• Make sure the machine is operated only at its specified voltage. Using an incorrect voltage may cause severe damage or burning of the machine.

1.3 Safety precautions during operation

1) Do not operate the hot-melt machine in areas with flammable vapors, explosive materials or gases.
2) Do not operate the machine if any of the required safety guards or protective devices are missing or removed.
3) Do not operate the machine when the ambient temperature is below 0 °C or above 50 °C.
4) If the nozzle assembly is exposed to fast-moving air, it may cool rapidly and affect the hot-melt flow rate.

1.4 General precautions during use

• Never place other objects on top of the machine or use the machine as a platform to support other items.
• Only use the machine base when lifting or moving the RBLM1100. Do not lift it by hoses, cables, covers or other parts.

1.5 Safety precautions during maintenance and repair

When performing maintenance or repair on the RBLM1100, observe the following safety measures:
1) Before starting any maintenance work, disconnect the compressed-air supply and isolate the machine from the main power supply.
2) During disassembly and repair, operators should avoid wearing earrings, watches, necklaces, bracelets or any conductive accessories.
3) Do not disassemble, inspect or adjust any part of the hot-melt machine unless a qualified technician is present or has provided guidance.
4) Only qualified personnel are allowed to carry out maintenance and repair work on this machine.
5) Do not touch exposed electrical connections or components that are wired and live.
6) Before removing or moving any protective cover, or before replacing any electrical parts, always switch off and isolate the power supply.
7) Do not work on the machine if the floor is flooded or in extremely humid environments.
8) Always wear safety gloves, safety goggles and long-sleeved work clothes to avoid burns from high-temperature liquid hot-melt adhesive or from hot component surfaces.
9) When loosening or installing any pressure fitting, make sure the operating pressure of the hot-melt system has been reduced to zero.
10) When cleaning the glue tank, do not use open flame or sharp tools, to avoid damaging the inner surface of the tank.

11) If air pressure leaks or hot-melt leakage is found on the machine, stop using the machine immediately and troubleshoot before restarting.

1.6 Safety precautions when using hot-melt adhesive

When using high-temperature hot-melt adhesive, pay special attention to the following:

• Hot-melt adhesive solidifies quickly from a high-temperature liquid into a solid. The solidified adhesive may still be at high temperature and can cause severe burns if it comes into contact with skin.

• When working near the hot-melt machine, always check that you are wearing complete personal protective equipment: safety work clothes, gloves and goggles.

If the skin is burned by liquid hot-melt adhesive, do not attempt to wipe off the adhesive directly from the skin. Immediately immerse or rinse the affected area in clean, cold water until the adhesive on the skin is completely cooled and solidified. Do not try to forcibly peel the adhesive off the skin. Cover the injured area with clean, wet gauze and seek medical attention. If the burn is severe or covers a large area, keep the victim’s body temperature stable and send them to hospital as soon as possible.

Chapter 2 Understanding the equipment

2.1 Equipment footprint drawings

The RBLM1100 machine footprint, front view and rear view are shown in the original drawings supplied with this manual. Refer to those figures for installation layout and space requirements.

Figure 2.2 LM 1100 Appearance drawing (back set) standby plane size drawing.

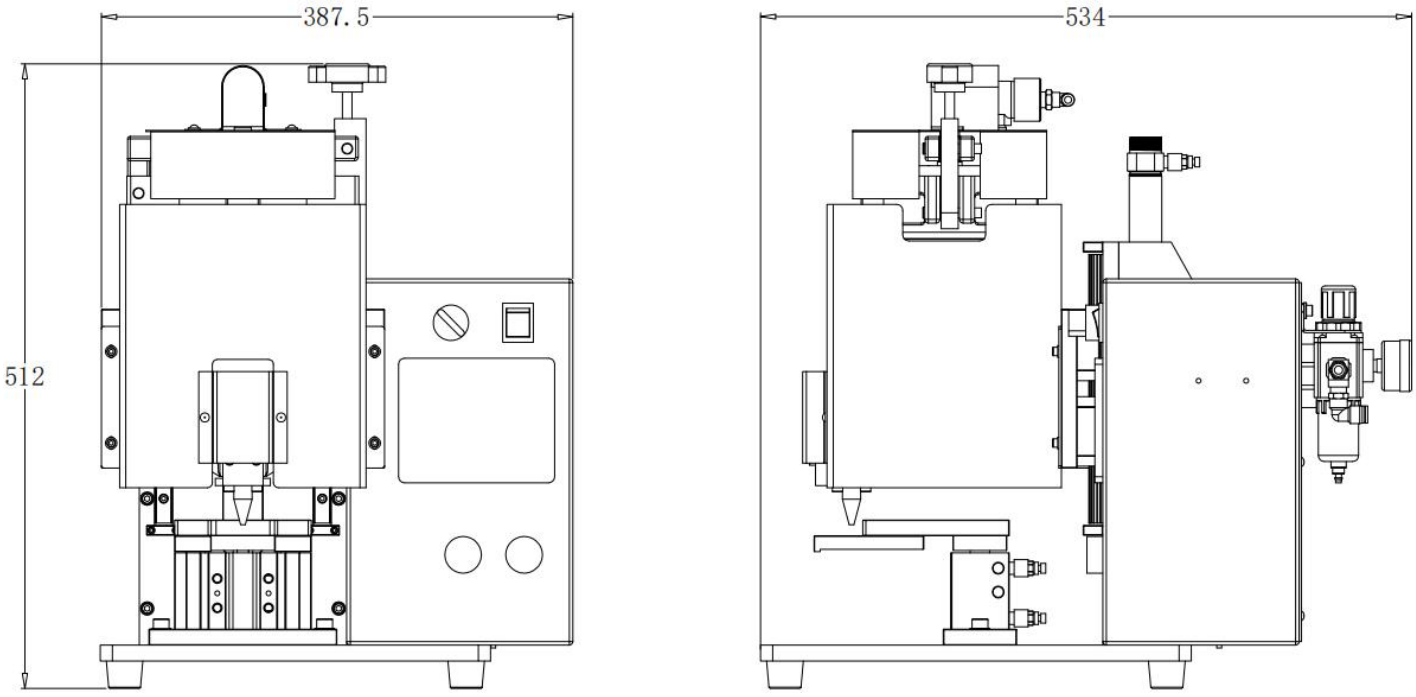


Figure 2.3 RBLM1100 Appearance and plane dimensions

2.2 Mechanical characteristics

The RBLM1100 pressure-retaining hot-melt machine is designed to melt various types and shapes of hot-melt adhesive. It is suitable for manual applications with adhesive viscosities in the range of approximately 500 to 20,000 cp.

The machine consists of two main systems: the power and control system, and the heating system. The heating system includes the hydraulic circuit for adhesive delivery and the pneumatic power system for pressure control.

Solid hot-melt adhesive placed in the specially designed glue tank is rapidly melted into liquid. When air pressure is supplied, the liquid adhesive is discharged through the nozzle assembly and can be applied to the workpiece as required.

2.3 Advantages of the RBLM1100 hot-melt machine

1) Light weight and compact size, easy to move.
2) Simple, safe lid design for easy refilling of adhesive.
3) Pneumatic power system.
4) Simple structure and easy maintenance.
5) Adjustable pressure and flow rate.
6) High melting rate.
7) Low failure rate.
8) Wide operating temperature range.
9) Timer control to adjust the amount of adhesive dispensed per shot.
10) Needle valve provides fast and sensitive shut-off of the adhesive flow.

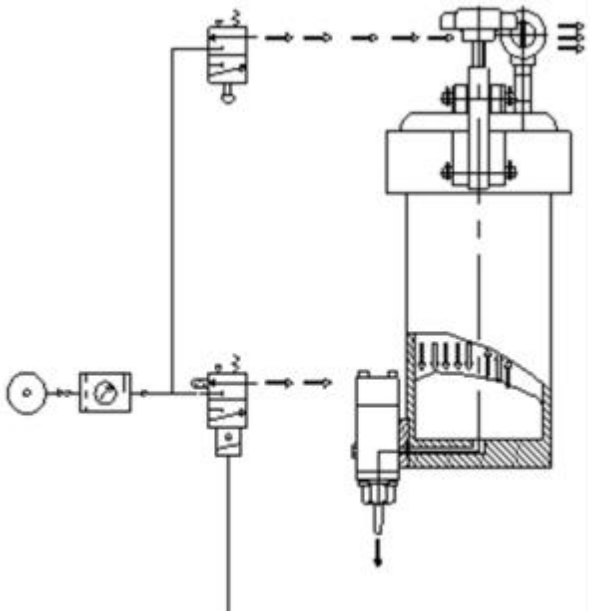


Figure 2-4 Brief flow chart

2.4 Equipment specifications

specifications	unit	RBLM1100
Glue tank capacity	Liter	1
Maximum melting rate	KG/HR	2.5 (actual value depends on adhesive type and grade)
Required air pressure	kg/cm²	MAX:5
Clamping force:	Kg	50
Maximum operating temperature	℃	250
Usable viscosity	CP	20000
Number of spray guns	Set	1
Dimensions	mm	460X533X560
Weight	Kg	40
Recommended mold size	mm	70X100X70
Tank heater power	Watt	1100
Power supply	AC 200~240V/16A 50/60Hz 1.0Ø	

2.5 Glue tank

Solid hot-melt adhesive is loaded into the glue tank. Heaters mounted around the tank generate heat and melt the adhesive completely into liquid, which then flows to each downstream device.

The inner wall of the tank is coated with Teflon (PTFE). This prevents adhesive from sticking to the wall and forming carbonized deposits that are difficult to remove, and also makes it easier to completely replace the adhesive.

A heat-transfer plate is installed at the bottom of the tank to increase the heat transfer area. Temperature is controlled by a temperature sensor embedded between the tank wall and the heater. The sensor signal is sent to the temperature controller to regulate heating.

2.6 Heating system

The glue tank of the RBLM1100 is heated electrically. The heater band is wrapped around the outside of the tank. A temperature probe monitors the temperature of the heating system. The signal is passed to the temperature controller, which determines whether to continue heating or stop heating in order to maintain the set temperature.

Chapter 3 Operating Instructions

3.1 Preface

This chapter describes the functions of the controls on the RBLM1100 control panel, the preparations required before operation, the operating procedures, and how to load or replace hot-melt adhesive.

3.2 Safety precautions

• Always wear safety gloves, safety goggles and long-sleeved work clothes to prevent burns from high-temperature liquid hot-melt adhesive or from hot surfaces.
• High voltage is present at parts of the nozzle assembly. Only qualified personnel may operate this equipment. Never touch the nozzle assembly while the machine is running, to avoid burns from hot surfaces or hot-melt adhesive.

3.3 Description of control panel keys

The RBLM1100 control panel includes the following main components:

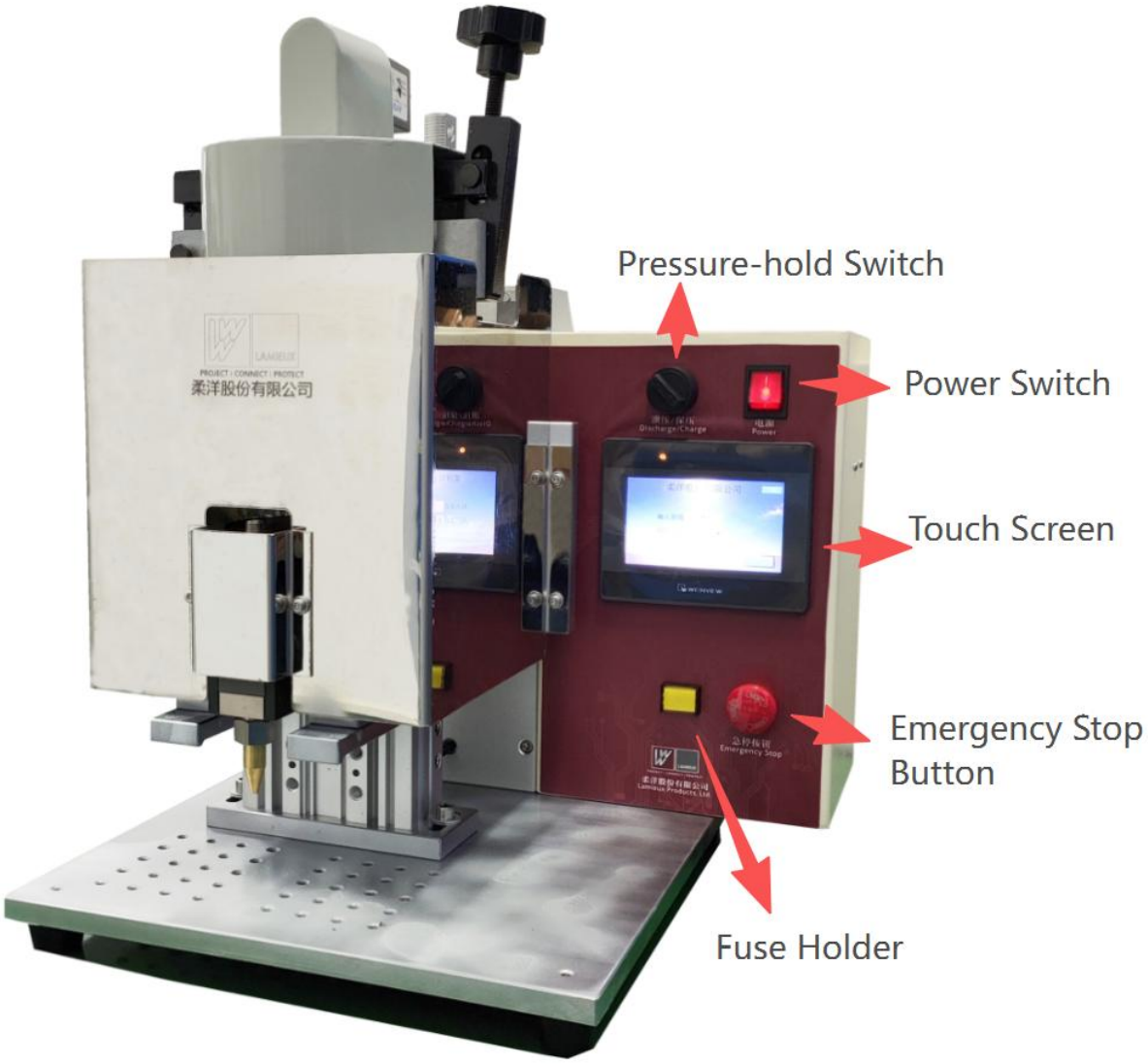
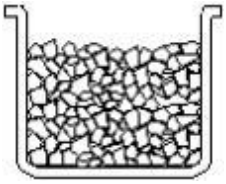
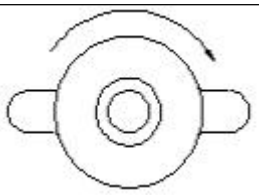


Figure 3.1 Control Panel Drawing

1) Power switch – turns the machine power ON and OFF.	
2) Pressure-hold switch – supplies air pressure to the glue tank in the Pressure-hold position, and releases pressure through the rapid exhaust valve in the Discharge position.	
3) Touch-screen interface – used to set operating parameters, monitor temperatures, and select manual or automatic modes.	
4) Fuse holder – holds a 7 A fuse to protect the machine from over-current.	
5) Emergency stop button: – press to stop the machine immediately in an emergency. After an emergency stop, the button must be reset before the machine can be restarted.	

3.4 Touch-screen operation

1) When power is turned on, the touch screen enters the login page. • Operator login: password 1234 (can run production but cannot change key parameters). • Technician login: password 4321 (can modify all parameters). Select Chinese or English to enter the home page of the operation interface.	
2) For the first startup, go to the Manual page and set the temperatures for the glue tank and glue gun. To obtain optimal material flow into the mold cavity, the glue-gun temperature is normally set 5 °C higher than the glue-tank temperature.	
3) Check that the air-pressure setting is correct.	
4) Check that the actual temperature has reached the set value and remains stable.	
5) After the actual temperature has reached the set value and stabilized, check whether the adhesive pellets in the tank are completely melted and confirm that there is sufficient adhesive in the tank (do not fill more than 80% of the tank capacity).	

6) Check that the tank lid is locked securely.	
7) Turn on the Pressure-hold switch. If you need to add adhesive while the machine is running, first turn the switch to Discharge, make sure there is no pressure in the tank, and then open the lid to add adhesive.	
8) On the Manual page, tap the Manual Glue Output button. If the adhesive comes out smoothly and no large air bubbles are observed, you can switch to Automatic mode to start production.	
9) On the Automatic page, set the Injection time and Cooling time, then start automatic production. Press the Auto Start button once to perform one automatic molding cycle.	
10) In an emergency, press the Emergency Stop button. After the cause has been removed, reset the button and return to the operation screen before restarting.	
11)If an emergency situation occurs and the emergency stop button is pressed, it needs to be reset before returning to the operation.	

3.5. Mold Installation Guide

approval	examine	Prepared by	operation instruction	**Version: A03** Effective date of this edition: 201,2020 **Page: 1**
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sequence of operation:

1) On the control panel, switch to the Manual page.

2) Repeatedly jog the Open/Close Mold button to move the mold to the proper position so that, after closing, the nozzle of the machine aligns precisely with the injection gate of the mold.

sketch map:

Figure 1

Figure 2

approval	examine	Prepared by	operation instruction	**Version: A03** Effective date of this edition: 201,2020 **Page: 2**
Jack Yang	Apple Qiu	Kevin Liang	RBLM1100 Molding procedure	

sequence of operation:

3) Use the clamping block and screw holes to lock the mold on the base plate and check that the mold opens and closes smoothly and clamps tightly.

4) Place the mold in the mold-holding area and position it accurately, then set the required process parameters (injection time, cooling time, temperature, etc.) on the touch screen.

sketch map:

Figure 3

Figure 4

approval	examine	Prepared by	operation instruction	**Version: A03** Effective date of this edition: 201,2020 **Page: 1**
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sequence of operation:

5) Turn the Pressure-hold/Discharge rotary switch on the control panel to the Pressure-hold position.

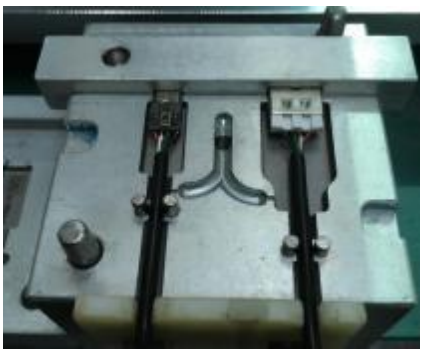
6) Switch the machine to Automatic mode and start production.

sketch map:

Figure 5

Figure 6

Figure 7



Chapter 4 Disassembly and Maintenance

4.1 Preface

This chapter describes how to disassemble and service the components of the RBLM1100 pressure-retaining hot-melt machine. It helps users identify possible causes of problems and correctly reassemble each component after maintenance.
For some system components, if disassembly is not strictly necessary, operators are strongly advised not to dismantle them on their own. In such cases, maintenance should be performed by qualified professionals.

4.2 Safety precautions

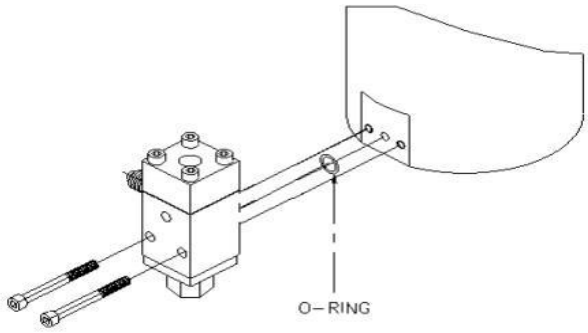
• Before removing the control panel, any machine cover, or replacing any electrical components, always disconnect the external power supply to avoid danger, injury or equipment damage.
• Always wear safety gloves, safety goggles and long-sleeved work clothes to prevent burns from high-temperature liquid hot-melt adhesive or from hot component surfaces.
• Do not use a blowtorch or any open flame to heat components that are coated with hot-melt adhesive. If heating and cleaning is required, use an electric oven with circulating hot air or a hot-air gun.
• During disassembly and maintenance, operators should avoid wearing earrings, watches, necklaces, bracelets or any conductive accessories.

4.3 Replacing the O-ring between the needle valve assembly and the glue tank

After the machine has been used for some time, if adhesive leakage occurs at the mating surface of the needle valve assembly while the valve is not actuated, the O-ring between the needle valve assembly and the glue tank may need to be replaced.

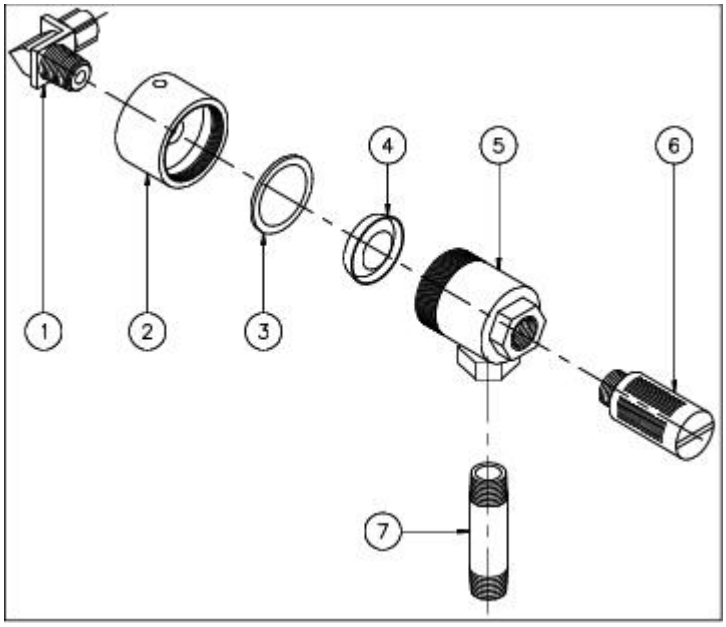
Follow the procedure below:
1) Heat the glue tank and discharge the molten adhesive from the tank.
2) Use a 4 mm hex key to remove the socket-head bolts that secure the needle valve assembly.
3) Remove the O-ring and gasket from the needle valve assembly.
4) Check the O-ring for damage and replace it if necessary. Usable O-rings without damage may be soaked in cleaning solvent and then wiped clean with a lint-free cloth.
5) When installing a new O-ring, ensure it is free from any foreign matter and lightly lubricated. At the same time, confirm that the O-ring grooves on the needle valve assembly and gasket are clean, then place the O-ring into the groove.
6) Carefully reinstall the needle valve assembly and gasket onto the manifold plate, taking care not to scratch the surface of the O-ring.
7) Use the hex key to tighten the socket-head bolts appropriately. Do not overtighten to avoid stripping the threads.

4.4 Rapid exhaust valve disassembly and maintenance



4.4.1 Figure 4.1 exploded view of rapid exhaust valve

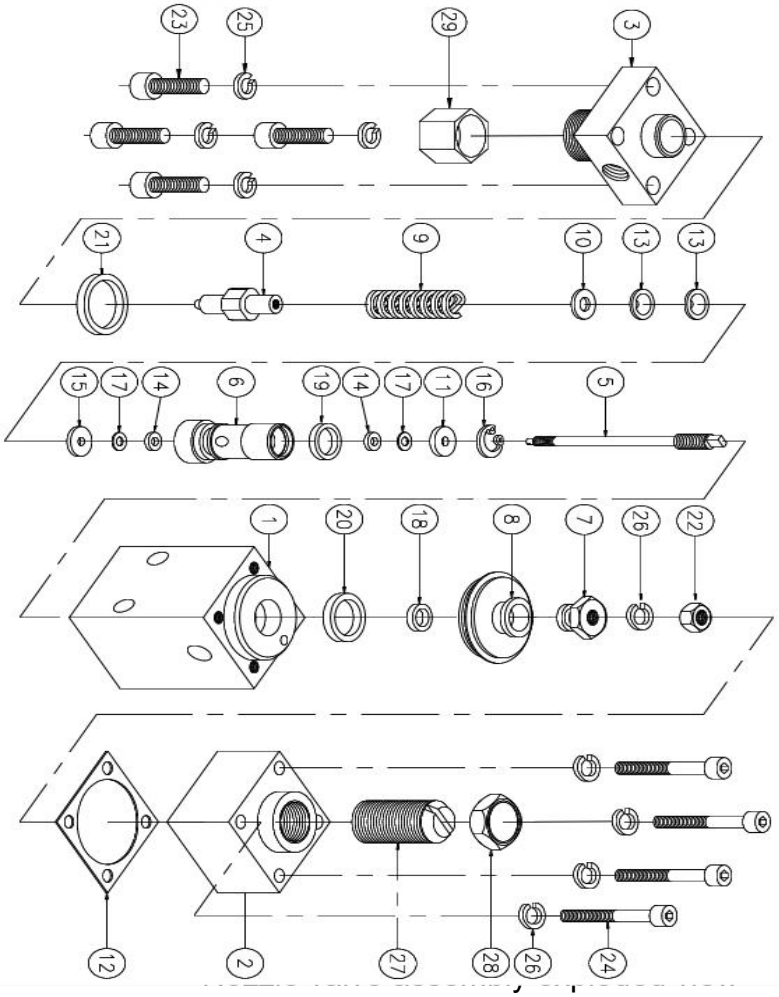
The rapid exhaust valve works together with the glue tank lid. If exhaust is restricted, it may cause nozzle leakage. In some cases, the nozzle may stop dispensing adhesive because the rapid exhaust valve is damaged or blocked by foreign matter. In these cases, the rapid exhaust valve must be disassembled, cleaned and repaired.
Basic procedure:
1) Disconnect and remove the air hose connected to the valve.
2) Use a Ø4 rod to remove the aluminum cap and check whether the plug (CAP) is damaged. Replace it if necessary.
3) Use a flat-head screwdriver to remove the silencer. Check whether the silencer is blocked or damaged and replace it if necessary.



4.4.2. Corresponding table of decomposition number of rapid exhaust valve

part number	part number	name	material quality	quantity
1	CTL602-CAM	90 Degrees joint	Commercial Item	1
2	QQ01－2	Aluminum cover	AL	1
3	QQ01－3	Seal ring	PE	1
4	QQ01－4	plug (CAP)	NBR	1
5	QQ01－1	Body	AC1A	1
6	K01DL	Silencer	Commercial Item	1
7	NP0202	Steel bracket		1

4.4.3. Corresponding table of the nozzle valve combination drawing part number



part number	part number	name	quantity
1	0751E01	Body	1
2	1103E02-1	Upper cover	1
3	1103E03+	Connection cover	1
4	1103E05A	Needle seat	1
5	1103E06	Adjust the glue shaft	1
6	1103E04-1	valve body	1
7	1103E07	Copper screw cap	1
8	1103E080910	bush	1
9	Q6.59.32608V	spring	1
10	1103E20	washer	1

11	1103E14	washer	1
12	1103E13	Seal ring	1
13	1103E21	Seal ring	2
14	1103E22	Seal ring	1
15	1103E23	Seal ring	1
16	C10B	Type C ring	1
17	OP3V	O ring	2
18	OP6V	O ring	1
19	OP9V	O ring	1
20	OP12V	O ring	1
21	OP16V	O ring	1
22	U05Z	hexagonal nut	1
23	SC051673B	Hex socket screw	4
24	SC043073B	Hex socket screw	4
25	W0512Z	Spring washer	4
26	W0412Z	Spring washer	4
27	1102E02-1U	adjusting rod	1
28	1102E02-2U	blind nut	1
29	SC1614	blind nut	1

Chapter 5. Troubleshooting

5.1 Preface

This chapter explains how to diagnose and prevent faults on the RBLM1100 pressure-retaining hot-melt machine. For detailed information on disassembly, repair or parts replacement, refer to Chapter 4 Disassembly and Maintenance.

5.2 Safety precautions

• Before removing the control panel cover, any machine cover or replacing electrical parts, disconnect the external power supply to avoid danger, injury or equipment damage.
• Before removing any component, make sure that the system pressure has been fully released; otherwise serious accidents may occur.
• Always wear safety gloves, safety goggles and long-sleeved work clothes to prevent burns from high-temperature hot-melt adhesive or hot component surfaces.
• Do not use a blowtorch with open flame to heat components contaminated with hot-melt adhesive. If heating and cleaning is necessary, use an electric oven with circulating hot air or a hot-air gun.

5.3 Troubleshooting of the mechanical and electrical system

Common problems and possible causes include the following:
Problem 1 – Glue tank does not heat, or temperature cannot reach the set value:

Problem 1 – Glue tank does not heat, or temperature cannot reach the set value:
• Main power switch failure – check whether the wiring to the switch is correct and firmly connected; repair or replace as required.
• Fuse loose or blown – check the fuse; tighten the holder or replace the fuse.
• Improper thermostat setting – check and correct the temperature setpoint.
• Temperature controller failure – check wiring to and from the controller; if wiring is correct, replace the controller.
• Heater band failure – check whether the heater band wiring is loose; if the controller and wiring are normal, replace the heater band.

Problem 2 – No adhesive comes out of the nozzle, or adhesive flow is unstable:
• Nozzle blocked – examine and clean the nozzle outlet.
• Insufficient or no air pressure – check the pressure at the air filter regulator and adjust to the correct pressure.
• Rapid exhaust valve blocked or leaking – inspect, clean or replace the valve and its plug (CAP).
• Nozzle assembly failure – replace the nozzle assembly if necessary.
• Solenoid valve failure – replace the solenoid valve if necessary.

5.4 Daily maintenance

• Before daily operation and before the glue tank is heated, use a soft tool (such as a phenolic scraper or Teflon scraper) to remove carbonized deposits from the inside of the tank, then blow it clean with compressed air.

• After daily operation, wear gloves and use a lint-free cloth to wipe off any residual adhesive from the upper inner wall of the tank to prevent carbonization.

• After each day's use, wipe all accessible surfaces of the machine with a clean cloth. Apply a thin layer of oil on steel plates to prevent rust.

• Once a week, after using up the remaining adhesive in the tank, remove the heater block inside the tank and wipe off any residue on the inner wall with a lint-free cloth.

• Lubricate the slide part with a small amount of oil once a week.

Figu 5-1