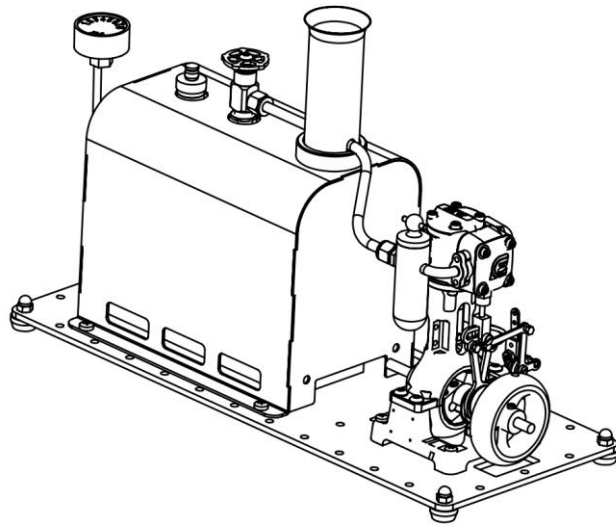


RW-BL1K Instruction Manual



1.Product Introduction

The main body of the steam engine uses a die-cast brass structure. The brass cylinder is inlaid with a stainless steel cylinder liner. The crankshaft is supported by ball bearing. Complete Stephenson valve can rotate forward. The steam boiler uses a copper-welded boiler body and is equipped with a pressure regulating valve, safety valve, pressure gauge, and water level gauge. It also has a vaporized alcohol burner.

2.Specification

Engine	
Displacement:3cc(1.5cc*2)	Max. Torque:600g/cm
Stroke:12.7mm	Speed:3000RPM
Power:0.015 HP	Weight:445g
Pressure:2kg/cm ²	Bore:12.2mm
suitable boat sizes:50-80 cm	
Boiler	
boiler capacity:200ml	Weight:650g
Safety valve pressure: 2.5-3kg	Work pressure:2 kg/cm ²
Fuel:30ml alcohol(the alcohol purity ≥ 95%)	Pressure gauge range: 0-7 Bar (kg/cm ²)

Product dimensions: 250*100*163mm Packaging dimensions: 277*170*105mm

Net product weight: 1280g

cWeight including packaging: 1630g

3.Product Test:engine

Lubricating Before the engine is running, the oil tank needs to be filled with steam oil. All rotating and moving parts such as crankshaft, connecting rod, crosshead, bearing position need to be lubricated with engine oil. Before each engine operation, it is necessary to drain the accumulated water in the oil tank and refill it with steam oil. Under normal 2kg steam pressure, the lubricating oil in the oil tank can provide lubrication for about half an hour. Because running on compressed air does not allow vapor cylinder oil to enter the engine for lubrication, if running on compressed air you will need to add a few drops of air tool oil to the air intake every hour for lubrication. Prolonged compressed air operation is not recommended.

Running-in Although precision machining is used, it still takes about an hour to run in the engine to achieve the best working condition. Please do not exceed 2000rpm during the running-in period. After the running-in, check all screws and tighten them if they are loose.

Forward and reverse When switching reverse gear during operation, please reduce the engine speed first. Switching reverse gear at high speed may cause the engine to stop suddenly and damage parts. If it is difficult to switch, temporarily turn off the regulator.

Starting The normal working pressure of the engine is 0.5-2bar, and the maximum working pressure cannot exceed 3bar. Avoid high-speed operation of the engine in no-load time to prevent damage, the maximum working speed of the engine is 3000RPM. A single-cylinder steam engine cannot be self-starting with the piston at its uppermost and lowermost points; it can be started by hand-turning the flywheel, or it can be self-started by repeatedly switching the reversing lever to change the piston position.

Maintenance After operation, drain the water in the oil tank, check whether the screws are loose every 10 hours. Bearings, rubber rings and other parts that are easy to wear need to be checked every 50 hours, and they need to be replaced if the wear is too large.

Product Test:boiler

Add water Before starting the boiler, it is necessary to add water first. First, unscrew the safety valve, and add clean water from the safety valve position. A funnel or syringe can be used to add water. The amount of water added must not exceed the highest point of the water level gauge. Before ignition, it is also necessary to check whether there is sufficient water in the boiler. During operation, it is also necessary to frequently check whether there is water within the range of the boiler water level

gauge.

Check Before each ignition, check that the pressure regulating valve opens and closes smoothly, then close the pressure regulating valve. Check the safety valve by lifting it with your hand. It should lift smoothly against the spring and return to its original position when you release it. Check that there is sufficient water in the boiler.

Startup Using a syringe, add 20-30 milliliters of alcohol to the burner nozzle of the alcohol burner (the alcohol purity $\gg$ 95%). Be careful not to add too much or too little; adding too much may cause overflow, while adding too little may result in a short burning time. After adding the alcohol, ignite the burner nozzle. Once ignited, the burner nozzle will begin to burn. Push the burner into the boiler interior. The alcohol will extinguish naturally once it has burned out. If you need to extinguish it midway, use a metal plate to cover the combustion port. Do not overturn the burner, as overturning it may cause alcohol to leak and pose a fire hazard. This burner is an alcohol vaporization burner and requires 2–3 minutes of preheating to achieve optimal combustion performance. Optimal combustion is achieved when small holes around the combustion port also emit and burn. This burner is an alcohol vaporization burner and requires high-purity alcohol with a purity greater than 95%. Alcohol with excessive moisture content can affect flame intensity.

Operation After the burner starts operating, the water inside the boiler begins to vaporize, and the pressure gradually increases. During the pressure increase process, the water level gauge does not show boiling water; boiling water is only visible when the pressure regulating valve opens to supply steam to the steam engine. Therefore, it is essential to monitor the boiler pressure at all times. When the boiler pressure reaches 2 bar, the pressure relief valve can be opened to supply steam to the steam engine. The pressure relief valve is a quick-opening type; rotating it counterclockwise by 90° fully opens it, so it should be opened in small increments.

Installation Boilers and steam engines must be installed on flat wooden or metal boards to avoid frame deformation caused by installation on curved surfaces.

Safety Please note that boilers reach extremely high temperatures during operation, which can cause burns or injuries. Even after shutdown, the machine must be allowed to cool before touching it. This boiler is not a toy. Improper use or failure to follow safety precautions and instructions may result in serious injury. RW is not liable for any losses, injuries, or damages resulting from the misuse of its products. The pressure regulator operates at high temperatures and must be handled with tweezers. The safety valve may release high-temperature steam, so gloves and safety goggles

must be worn when operating it.

4. Three Views

