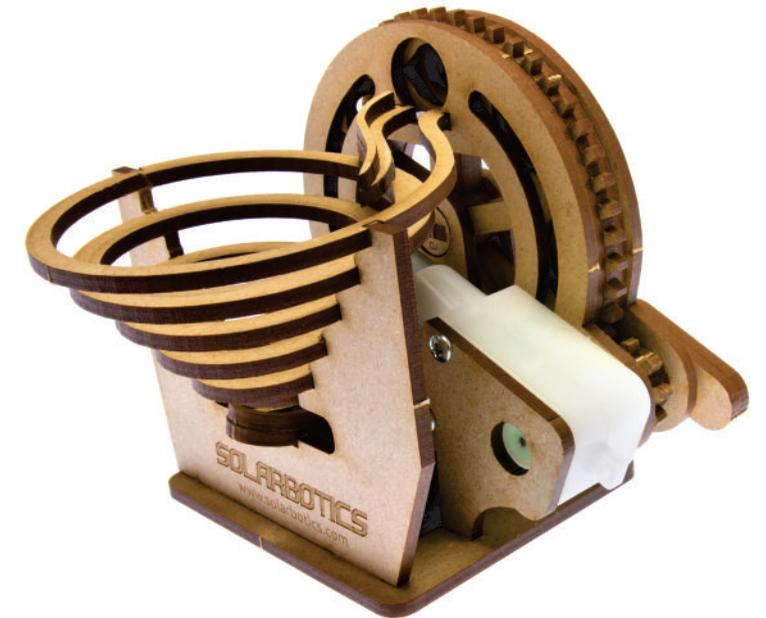


# Marble Machine Kit Battery Edition

*The fun of a Marble Machine,  
miniaturized for your desk,  
now battery powered!*



## TROUBLESHOOTING

If your Marble Machine isn't fully functional, check this troubleshooting list:

**The marble doesn't run consistently down the whole length of the spiral:** Make sure the Machine is sitting level. Find the point where the marble jumps off and adjust the spiral forwards or backwards slightly in the holding notch to make that section of ledge a bit larger.

**The motor is not moving:** Make sure the switch is ON. Check that the batteries are not dead, or their polarity is backwards. Last, check that the wire connections at the motor leads are intact. Reattach them if necessary.

**The wheel assembly gets stuck while turning:** Wrap sandpaper around a pencil and sand the holes of the two inner wheel frames that hold the shaft. This reduces the friction on the wheel assembly, making it spin easier. Check to see if any glue from the top rail has dropped into the inner wheel frame and gummed up the works.

**Really Important Note:** For proper functioning it is super-important to have all **eight** marbles loaded and running through the machine. Fewer will work, but a misfed marble may jam the wheel mechanism at the lower rail.

If you happened to lose one or more of the marbles, the extra sets are available for purchase separately at solarbotics.com.

## SOLARBOTICS "NO FEAR" WARRANTY

If damage occurs during construction, [contact us](#). We'll make sure you get the replacement parts to have a successful Marble Machine experience!

Visit us online for more info and cool stuff:

[www.solarbotics.com](http://www.solarbotics.com)

**Questions or  
comments?  
Let us know!**

✉ support@solarbotics.com

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Calgary, Alberta T2E 6M6  
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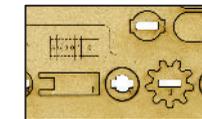


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🇨🇦 Made in Canada



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Easy to build, with engraved building notes



Precision laser-cut fibreboard construction



No-solder battery-powered construction



Chrome steel marbles

👤 Ages 12 and up

🔋 2 x AAA batteries required (not included)

🔧 Basic tools required (no soldering)

🕒 1 hour build time



**WARNING: Swallowing hazard!**

Product contains small parts. Finished kit is not for young children.

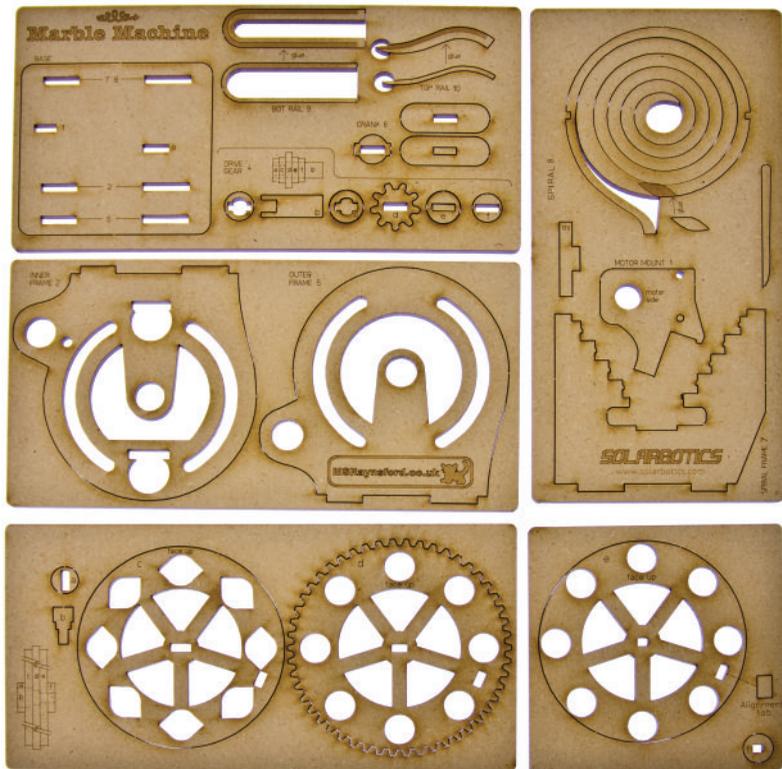


**SOLARBOTICS**<sup>®</sup>  
Ltd.

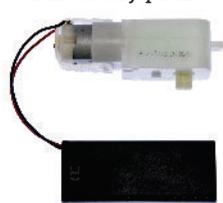
www.solarbotics.com  
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PARTS LIST

a) Set of wooden parts



b) GM9 Motor with battery pack



c) 2 x #4x1/2" Screws



d) 8 x 3/8" Marbles



TOOLS

Assembly is very straightforward, but you'll still need:

- Philips #1 screwdriver
- Wood or white glue
- Tweezers (optional)
- Small file or sandpaper (optional)

ASSEMBLY STEPS

1. Wooden Frame Assembly

Gluing Rails

Glue takes time to cure, so let's get it started with Spiral set #8. Glue the diamond to its shadow marked on the spiral. For Bottom rail set #9, glue the narrow "U" to the larger "U". On the Top Rail set #10, glue the slim sliver to the finger rail.



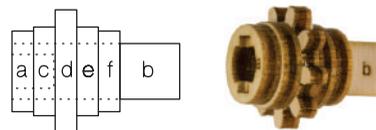
Spiral rail (set 8)

Bottom rail (set 9)

Top rail (set 10)

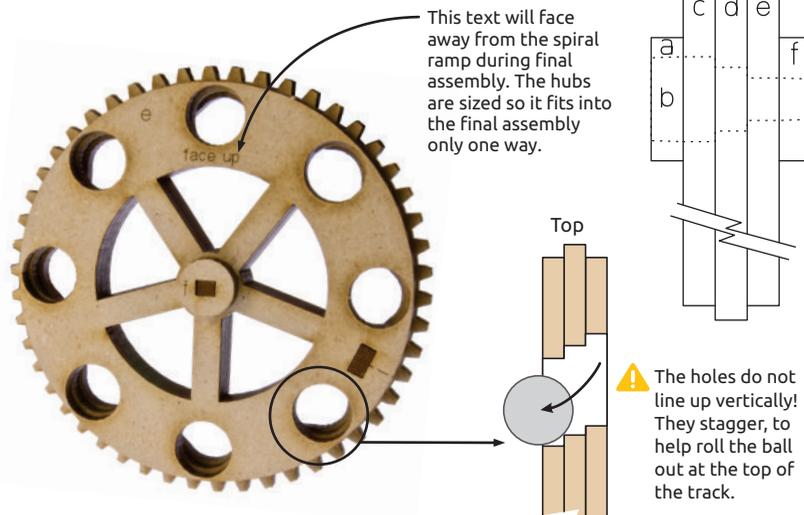
2. Drive Gear Assembly

Pop out the drive gear pieces from the wooden carrier board and assemble them in the order shown. Glue is optional.



3. Gear Wheel Assembly

Follow the diagram and stack the pieces together onto the axle. Again, gluing them together is optional for this step.

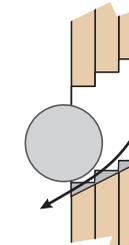


This text will face away from the spiral ramp during final assembly. The hubs are sized so it fits into the final assembly only one way.

⚠ The holes do not line up vertically! They stagger, to help roll the ball out at the top of the track.

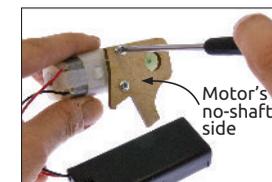
4 - optional

You may want to sandpaper away the edge of the staggered steps to prevent marbles from possibly sticking in the wheel.



5. Battery Pack Mounting

Now use the #4 screws to attach the motor to the wooden holder.



6. Final Assembly (see overleaf)

To put it all together follow these steps:

1. Install the motor mount assembly (1).
2. Push the inner wheel frame (2) into the base plate. The motor assembly should fit snugly against the frame, with the motor shaft in the center of crank shaft hole.
3. Slide the gear wheel assembly into the inner wheel frame (2). The text on the wheel assembly should face outwards, **away** from the frame.
- 3a. Install the battery pack holder tab (3) into the slot.
4. Push the drive gear assembly (4) onto the motor shaft, so that it sits flush against the inner wheel frame (2). The wheel assembly gears and motor gear should mesh nicely.
5. Push the outer wheel frame (5) into the base plate. Both the gear and wheel assemblies should sit inside their respective holes. Make sure that the wheel frame is flush against the wheel assembly.
6. Slide the crank handle spacer and caps (6) onto the shaft of the gear assembly. Glue is optional.
7. Attach the spiral frame (7) by pushing it into the base plate. Glue is optional.
8. Secure the spiral rail (8) to the frame. Start at the top, then push the spiral downwards. While pushing, slide the spiral back & forth to lock the rail under each notch.
9. Install the return ramp (9) between the spiral holder (7) and inner wheel frame (2). Make sure the motor wires are not obstructing the return path of the marbles! Glue is optional, but recommended.
10. Wedge the top rail (10) into the inner wheel frame (2). Glue it to the diamond support on the top spiral arm and the ball exit notch.

Load the marbles and manually crank them in, while watching for any sticky motion. Make sure all frame pieces are well seated on the base for proper alignment.

Flip the ON switch and enjoy!