

# SELF POWERED METAL VOLCANO TOWER

**Metal volcanoes** are an excellent source of, you guessed it, metal! It can be tricky to extract the metal from one of these volcanoes at a reasonable temperature. This build will be completely self-powered and will work on all metal volcanoes (gold, copper, and iron).



The heat from the metal powers a cooling loop and some buildings to manage the debris. The tricky part is keeping this build powered during dormancy. Using any amount of batteries will never work, they all leak power. Instead we store up energy in the form of hot steam. This method can store up **70+ cycles** worth of power.

## AN OVERVIEW

- **Steel** is required for this build (needed).
- The steam is kept at 100°C, the metal block around 100°C, and the turbine around 10°C. Metal comes out around 10°C (adjustable).
- Don't forget the two tempshift plates behind the volcano!



## CONVEYER OVERLAY

- Metal should stay in the conveyor rails as long as possible, this is how heat is extracted from the metal.
- The **auto-sweeper** and **conveyor loader** must be made of **steel**.
- The conveyor rails can be made of iron ore, but it is important for the rails to not overlap the two tiles where liquid metal comes out, and the insulated tile to the right of the liquid valve.



## LIQUID OVERLAY

- The thermo aquatuner must be made of **steel**.
- Liquid valve: **1000g/s** (important)
- When there is 1000g or less liquid in a pipe it cannot transition to gas. This lets us safely heat the water without bursting pipes.
- The double bridge layout on the right creates a 1-cell buffer-space to make sure the cooling loop does not get stuck.
- **Gold** radiant pipes and **igneous rock** insulated pipes work fine.



- Without bridges for clarity:



## POWER OVERLAY

- Do not put wires directly behind the volcano.
- The **smart battery** must be made of **steel**.
- This build is completely self powered and self starting, it never needs to be connected to your power grid!



## AUTOMATION OVERLAY

- Liquid pipe thermo sensor: **above 50°C** (adjustable)
- Thermo sensor: **above 100°C**
- Smart battery: **high 90, low 60**
- Filter gate: **5s** (unimportant)
- Timer sensor: **to green, ~70s red** (see below to adjust)
- The steam turbine is turned on when we need power (smart battery is low) or the steam room is too hot (thermo sensor above 100°C). Otherwise it stays off so we can store power as heat in the steam.



- It is recommended (but not strictly necessary) to adjust the timer sensor to always keep the conveyor rails full. The formula is:
- $20 = (Output \div Eruption\ time) \div Eruption\ period \div Active\ time + Active\ period$
- $20 = (23 \div 55 \div 876 \div 58.2 \div 106.2) = 79.5$
- This means the timer should be set to **79s red**.



## BUILD AND STARTUP

- Build the initial structure. Fill it with tiles to create a vacuum.
- Tip: Drop some water next to the volcano if you dig out a few tiles. It can be mopped up later and makes the vacuum easier to create.



- Don't dig out the center tile of the volcano so it can't erupt.
- Add buildings, liquid pipes, power wires, conveyor rails, and automation wires. (Don't forget the two tempshift plates!)
- Use **steel** for the aquatuner, auto-sweeper, and conveyor loader.
- Set the **liquid valve to 1000g/s** before building the metal tiles.



- Close up the top left, and start adding water.
- Each tile at the bottom has 400kg of water (2400kg total). Do not exceed 500kg or you can overpressurize the volcano.



- Fill the cooling loop with water.
- Build the smart battery.
- Fill all the automation settings.
- Now everything is pretty safe, even if it starts erupting. Dig out the last tile and analyze the volcano (then adjust the timer).



- Close everything up and wait. Make sure the conveyor loader does not accept anything!
- When the battery starts full set the conveyor loader's filter to "all". This will start the system, enjoy your metal!



## EXTRA INFO

- The output should probably be sent to your storage location, not dropped next to the volcano!
- It may take a few eruptions to start the system, but it will always start (unless you are sweeping up all the metal and not letting the water get hot!).
- It's possible for a gold volcano with a very long dormancy period to lose power for a few cycles. This is not a problem and the system will start back up seamlessly.



Video guide from 'They Just Said It' @

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