GENERAL

fusion reactor ftb wiki

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Introduction

In the sprawling world of modded Minecraft, energy production is the lifeblood that powers everything from automated farms to sprawling industrial complexes. Among the myriad of power systems, the **fusion reactor** stands out as a pinnacle of efficiency and ambition. For players who dive into the Feed the Beast (FTB) ecosystem, the **FTB Wiki** is an indispensable resource, offering step by step tutorials, mod overviews, and community curated best practices. This article explores the fusion reactor in depth, guiding you through its concepts, construction, and optimization—all while leveraging the wealth of information available on the FTB Wiki. Whether you're a seasoned tech savvy gamer or a newcomer eager to harness the power of fusion, this guide will help you build, troubleshoot, and master fusion reactors in the FTB modpack environment.

What Is the FTB Wiki?

The FTB Wiki is a community maintained knowledge hub dedicated to the Feed the Beast modpacks. It serves as an encyclopedia for mods, recipes, mechanics, and gameplay strategies, with a particular focus on the complex interactions that arise when multiple mods coexist. The wiki's structure is organized into categories such as "Mods," "Recipes," "Tech Trees," and "Guides." Each entry contains detailed descriptions, screenshots, and frequently updated changelogs, making it an ideal reference for both beginners and veterans.

Key features of the FTB Wiki include:

- Mod Integration Guides: Step by step instructions on how to combine features from different mods.
- Energy System Comparisons: Clear breakdowns of power generation methods, costs, and output rates.
- Community Contributions: User generated content, including custom builds and optimization tips.
- Searchable Database: Quick access to specific items, blocks, or mechanics.

Fusion Reactors in the FTB Wiki

Within the FTB Wiki, fusion reactors are prominently featured under the "Energy" and "Tech" sections. These entries cover a range of mods that implement fusion technology, such as **Immersive Engineering**, **Ender IO**, **Applied Energistics 2**, and **Thermal Expansion**. Each mod offers its own flavor of fusion, from the classic "Fusion Reactor" block of Immersive Engineering to the more exotic "Fusion Reactor" from Ender IO, which can be paired with the **FTB Infinity Evolved** modpack's advanced power needs.

The FTB Wiki's fusion reactor pages typically include:

- Full build diagrams and schematic diagrams.
- Detailed component lists and resource requirements.
- Power output calculations and efficiency charts.
- Common pitfalls and troubleshooting tips.

Step by Step Guide to Building a Fusion Reactor

Below is a comprehensive walkthrough for constructing a basic fusion reactor using the Immersive Engineering

mod, one of the most popular fusion implementations in the FTB community. The principles apply broadly to other mods, with minor adjustments for component names and placement rules.

1. Gather Resources

Before you start building, ensure you have the following items:

- 5 × Iron Ingot
- 4 × Redstone Block
- 1 × Magnetite Ore (or equivalent)
- 2 × Fuel Rods (e.g., Uranium or Thorium)
- 1 × Fusion Reactor Core (crafted from iron and redstone)
- Optional: Cooling System components like copper pipes or water sources.

2. Craft the Fusion Reactor Core

Use the Immersive Engineering crafting table to combine the iron ingots and redstone blocks into a Fusion Reactor Core. The recipe typically looks like this:

1. Place 5 iron ingots in a cross shape.
2. Surround the center with 4 redstone blocks.
3. Result: Fusion Reactor Core.

3. Construct the Reactor Frame

The reactor frame is a 3x3 grid that houses the core and fuel rods. Build the frame using iron blocks or steel plates, depending on the mod's requirements. The layout is:

- Center block: Fusion Reactor Core.
- Four corners: Fuel Rods.
- Remaining positions: Cooling pipes or water.

4. Connect Power Output

Attach an energy output block to the reactor's designated output port. In Immersive Engineering, this is usually a **Power Conduit** that can be wired into your power grid or directly to an **AE2 Energy Cell**. Ensure that the conduit is powered by a stable power source such as a generator or a battery bank.

5. Activate the Reactor

Right click the reactor's control panel to start the fusion reaction. Monitor the temperature gauge; if it exceeds safe limits, add additional cooling resources or reduce the fuel input. Once stabilized, the reactor will output a steady stream of energy, measured in RF (Redstone Flux) or EU (Energy Units), depending on the mod.

Fusion Reactor Variants and Mod-Specific Features

While the Immersive Engineering fusion reactor is a popular baseline, the FTB Wiki also documents several other fusion variants:

Immersive Engineering Fusion Reactor

- Uses magnetite ore and fuel rods.
- Outputs up to 20,000 RF per tick.
- Requires a Cooling System to prevent overheating.

Ender IO Fusion Reactor

- Combines Enderium and Redstone to create a high output reactor.
- Produces up to 30,000 EU per tick.
- Can be integrated with the Ender IO Energy Grid for seamless power distribution.

Thermal Expansion Fusion Reactor

- Utilizes Thermal Alloy and Redstone.
- Outputs moderate power but offers easy scalability.
- Ideal for mid tier power needs in FTB Infinity Evolved.

Fusion Reactor vs. Other Energy Sources

Understanding where fusion stands in the energy spectrum is crucial for efficient base design. Below is a quick comparison of common power sources featured in the FTB Wiki:

Energy Source	Output (per tick)	Cost	Best Use Case
Solar Panels	200 RF	Low (Sunlight)	Passive, low scale farms
Turbines (Wind)	1,000 RF	Medium (Wind)	Supplementary power
Nuclear Reactors	10,000 RF	High (Uranium)	Large industrial complexes
Fusion Reactor (Immersive Engineering)	20,000 RF	Very High (Magnetite + Fuel Rods)	High tier, sustained power

Fusion reactors shine when you need a reliable, high output power source that can run continuously without the limitations of daylight or wind. However, the resource intensity and cooling requirements make them less suitable for small or mobile setups.

Common Issues & Troubleshooting

Even the most meticulous builds can encounter hiccups. Below are frequent problems and how to resolve them:

1. Overheating

Fusion reactors generate massive amounts of heat. If the temperature gauge climbs beyond safe thresholds, the reactor will shut down or explode. Solutions:

- Install additional cooling pipes.
- Use a Water Source Block adjacent to the reactor.
- Reduce the fuel input rate.

2. Power Output Fluctuations

Fluctuating output can be caused by unstable power grids or insufficient energy storage. Mitigate by:

- Adding a Battery Bank to buffer spikes.
- Ensuring all conduits are properly connected.
- Using a Power Management System like AE2's Energy Cell.

3. Resource Scarcity

High tier fusion reactors demand rare materials such as magnetite or enderium. Plan ahead by:

- Establishing a dedicated mining operation.
- Automating ore processing with Immersive Engineering's Mining Drill.
- Setting up a Refinery to convert raw ore into usable components.

Tips & Tricks for Optimizing Fusion Reactors

Maximizing efficiency involves more than just building a reactor. Consider the following advanced strategies:

1. Modular Power Grids

Design your power network with modularity in mind. Use **AE2 Energy Cells** or **Ender IO Energy Conduits**to create a flexible grid that can absorb excess power or redirect it during peak demand.

2. Automated Cooling Systems

Integrate a **Redstone Comparator** with a **Water Pump**to create an automatic cooling loop. This setup ensures the

reactor never overheats, even during extended operation.

3. Power Management Software

Mods like **Applied Energistics 2** provide advanced power management tools. Use the **Power Monitor** to

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