

# Phoenix Fusion Generator

The Phoenix is nuclear fusion generator designed by [Galactic Horizon](#), capable of providing power to large vehicles and structures for a long time. The generator was developed and prototyped in mid [YE 40](#) by [Galactic Horizon](#) as part of their project to expand into heavy ground vehicles and structure development.

## About the Phoenix

Using the principal of nuclear fusion, the Phoenix achieves the energy output comparable to a fraction of the energy produced by a star. By using a high powered laser to ignite the fusion process, the Phoenix offers a generous and continuous output of energy with reduced radioactive exposure for technicians, however a suit is strongly recommended for unprotected users.

## Appearance

The Phoenix is a self-contained reactor system, designed to fit into a set housing structure (15mW x 10mL x 10mH) to allow its integration into various large vehicles and buildings or complexes. From the outside the housing resembles a small building with several smaller offsets where sensors and control units are located. Within the main housing unit is a specialised pressure chamber built to contain the energy expelled by a micro star reaction along with the extraction panels to derive electrical power from the reaction.

Image reference [here](#), the Phoenix would be smaller and slightly more compact on the inside than this concept image

## History

Designed and prototyped in [YE 40](#) by [Galactic Horizon](#) during the design phase of their major project, the URSA A.T.U. With the need for a large amount of power to supply the behemoth the company turned to the stars for inspiration. Using the well-known principles of atomic theory the Phoenix Fusion generator was quickly produced for testing with the first model replacing the main power source for the Horizon complex. This model however was much larger than the completed, compact version being around 1.75x the size of a standard model.

## Statistics and Info

Information and basic statistics for the Phoenix generator, being the first nuclear reaction generator designed by Horizon as well as their first major energy production device, its operational output and size

are nowhere near perfect. The current model is able to easily power a small town and has ample power production for large vehicles and medium starships.

Stats & Info	
Nomenclature	GH-K9-G4000
Designer	<a href="#">Galactic Horizon</a>
Manufacturer	<a href="#">Galactic Horizon</a>
Type	Fusion Reactor
Classification	Atomic
Power Output	4 000MW
Lifespan	Potentially Centuries, recommended for 50 years
Price	4 000KS

## Efficiency

Nuclear fusion involves the fusing of atomic bonds using abundant light atoms such as hydrogen which generates a massive amount of heat energy. This is captured by specialised solar films in and around the reactor that convert the heat and light into electrical energy. The system is imperfect and much of the energy is lost to extend the fusion reaction, as well as the lack of more advanced solar film leading to a reduced maximum output than is theoretically achievable.

Unlike a fission reaction, the fusion process expels far less radioactive particles making it far safer to operate and be around, being a more ideal power source to use within vehicles and closer to buildings.

## Maintaining

Like the core of a star the constant reaction must be maintained within a specific range of conditions to avoid detonating a micro supernova within the pressure chamber. Technicians assigned to maintain a Phoenix will need to regulate the coolant flow to maintain internal temperature, and must be ready to perform emergency heat venting or system shutdown if needed. Coolant pumped throughout the reaction chamber to remove excess heat is stored in a heat shielded storage tank on the side of the main building, this tank must be emptied after it is purified to remove any lingering radiation or recycled and used again.

While the automatic failsafe can regulate coolant flow and internal pressure and temperature, it is not perfect and if left unattended the reactor is likely to either overheat and explode or cool too much and shut down improperly. This will cause damage to the pressure chamber and may rend the device unusable for a length of time. If the main housing or control units are damaged or destroyed the manual control systems must be used by a technician else the reaction will become unstable and detonate.

## OOC Notes

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