



FORECAST 3D
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Skyfront

Customer Success Story



Detecting Success

It's not hyperbolic to say that magnetometry can literally be a life-or-death matter. Metal detection by drone can spot landmines and help in the search for a wide variety of metals. However, on-the-ground magnetometry can be time-consuming, costly and in many cases, dangerous. Electric drones can reduce these hazards. But it does have limitations.

Skyfront, a Silicon Valley-based hybrid drone manufacturer, brings advanced technology and endurance to the air, so that we can enjoy security, safety and ease-of-use on the ground.

What are hybrid drones?

Most drones on the market today are electric. While they do provide a cost-effective alternative to on-the-ground surveying, these drones present design challenges in magnetometry applications. Magnetometry sensors are heavy and most electric drones do not have the endurance to carry this added weight over time and distance. That's where Skyfront's first-of-its-kind technology comes into play.

"Seeing the need for extended endurance we developed the Perimeter 8, a hybrid configuration drone with a very, very long endurance system," says Hemant Chaudhary, lead engineer at Skyfront.

By harnessing a combination of electric and gasoline power, Skyfront can produce drones that carry 5 times the weight of an electric drone and for 5 times as long. With this added power, Skyfront drones can support a heavy sensor such as the Magniphy, mounted on a metal tube to dampen vibrations from the engine and provide stability in adverse wind or weather conditions for more accurate readings.



The Perimeter 8 hybrid drone stays airborne far longer than battery-powered models, thanks to the high energy density of gasoline.

Hybrid drones also provide critical solutions around the world. They help reduce the need for batteries in third-world nations, where delivering them can be much more challenging than delivering fuel. In addition, hybrid drones manufactured by Skyfront have helped detect landmines in Ukraine, literally saving many lives.

A partnership lifts off

Forecast 3D's partnership with Skyfront began in the summer of 2024. At that time, the manufacturer had just introduced version 1.0 of Magniphy, a universal sensor attachment that works with the Perimeter 8 drone. Magniphy provides a unique enclosure and suspension mechanism for magnetometers

improving data quality, efficiency and safety. The new model was already attracting industry attention when a customer told them they needed one within a week.

Chaudhary explained, "The core issue with manufacturing the Magniphy is that its enclosure panels are unusually long—beyond the typical size for multi jet fusion (MJF) parts—which none of our other suppliers could produce within a week."

Having previously met with the Forecast 3D team at a trade show, Skyfront re-connected with them to manufacture, test and deliver the panels within a week, all while adhering to strict standards on parts, as well as uniformity of color and finishes.

"Right away, we could tell [Forecast 3D] knew exactly what they were doing," said Chaudhary, reflecting on the first Forecast 3D-produced panels. "The material they used for bonding—and the technique itself—was something special. It wasn't just a simple cut and join; they used a lip-and-groove method, which is a much more sophisticated approach."

Flying forward into R&D

Since that first successful run, Skyfront has increasingly relied on Forecast 3D as a partner in refining the Magniphy design—from aligning internal components to crafting exterior panels with seamless finishes. In addition, Skyfront has realized a financial benefit to the partnership.

"Forecast 3D is able to suggest solutions that help improve the

product and not just complete the sale by offering a lower-cost alternative," said Chaudhary. He went on to point out that Skyfront has saved substantial time and resources through this partnership.

Magniphy-ing growth

Skyfront continues to benefit from the advantages of Forecast 3D's MJF-produced parts, which outperform traditional injection molding methods. Combined with the expertise the Forecast 3D team brings to the relationship, Skyfront has introduced Versions 2.0 and 3.0 of the Magniphy, making huge leaps in its performance and appearance each time.

"We're looking forward to continuing our work with Forecast 3D, especially with promising new projects on the horizon."



Using MJF-printed parts for the Magniphy attachment enables Skyfront to effortlessly refine the design and enhance overall performance.



Skyfront specializes in long endurance drones that fly for hours and carry large sensors for defense and commercial applications.

Find out how Forecast 3D can take your product from prototype to production. Visit **forecast3D.com** today or contact us directly at **(800) 549-5414** or **hello@forecast3D.com** to learn more.

Front Cover

The Perimeter 8 hybrid-electric drone equipped with the universal MagniPhy attachment, featuring a vertically oriented enclosure and suspension mechanism for magnetometers.



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