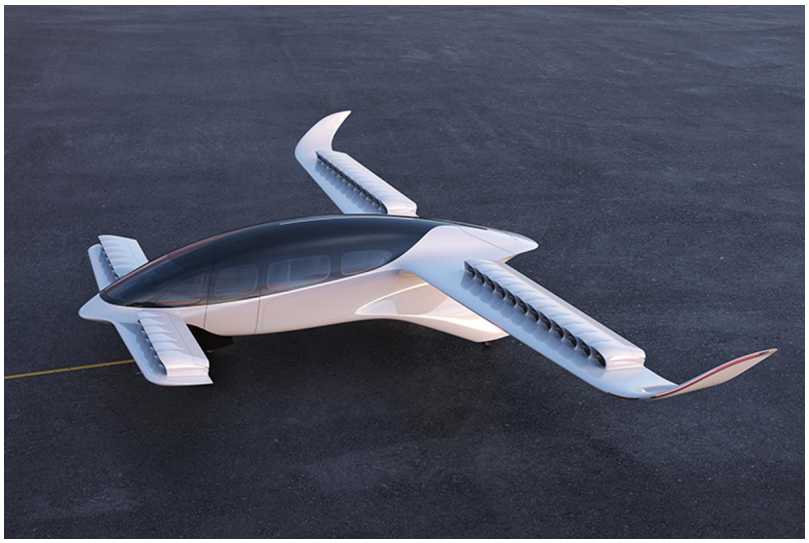
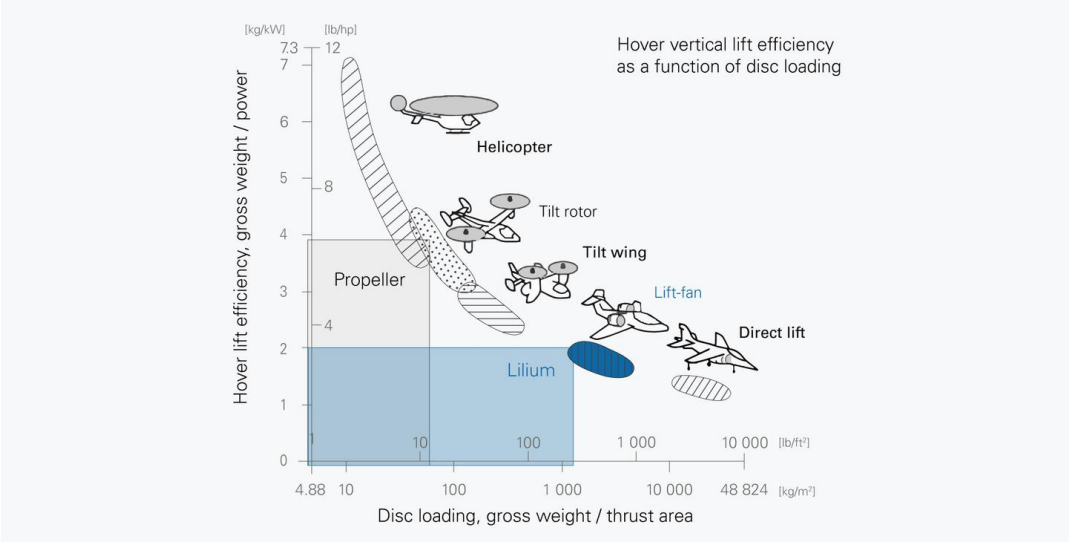


With its rows of small, ducted fans, the Lilium eVTOL aircraft may be at a disadvantage in a hover, but the company says the design offers some serious advatnages over the open-rotor competition Lilium

Small fans, all things considered, deliver thrust less efficiently than big ones. Lilium might have the best-looking aircraft in the eVTOL game, but it uses 36 tiny fans where competitors use six to eight larger ones, and that's got the odd chin wagging: is Lilium shooting itself in the foot, guaranteeing its aircraft shorter range figures than open-rotor competitors carrying the same amount of battery?

Perhaps not. The company has decided to address these concerns head-on and revealed plenty about Lilium's thinking in the process. We caught up for a Zoom chat with Lilium co-founder and VP of Product Patrick Nathen, and the company's new CTO, Alistair McIntosh, fresh out of his last position as Chief Engineer and Managing Director of Rolls-Royce Germany, to talk about the pros and cons of the small-fan approach.

In a recent blog post , McIntosh points out that yes, the Lilium design, with its small ducted fans and high disc loading (a ratio of overall weight to the area of the rotors), uses twice as much power in a hover than a similar weight design with larger tilting rotors. But after the first 30 seconds of vertical lift and transition, the small fan banks offer low drag in forward flight, where these aircraft will spend most of their time.



Lilium will lose a significant amount of efficiency in the hover phase due to its small rotors and high disc loading Lilium

Hence, Lilium doesn't talk much about *urban* air mobility – cross-town air taxi rides – and is much more interested in *regional* air mobility – inter-city jaunts up to 200 km (124 miles) at launch, with speeds up to 300 km/h (186 mph) and only a minute or so of flight time spent in the vertical lift configuration in which they're at an energy disadvantage. The Jobys and Volocopters can rule the cities; Lilium wants to be your long-distance eVTOL of choice.

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*__ https://newatlas.com/aircraft/lilium-interview-small-fans-pros-cons/?utm_source=New+Atlas+Subscribers&utm_campaign=3bacc3c6ff-EMAIL_CAMPAIGN_2021_06_10_08_06&utm_medium=email&utm_term=0_65b67362bd-3bacc3c6ff-90431105