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Quarterly Vol. 3-2025

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低空经济、MOSAIC 规定与超轻机

LAE , MOSAIC and Ultralight

在过去两年里，中国的低空经济（LAE）成为了先进空中交通（AAM）在中国发展的热门关键词。一些人把所有与通用航空相关的内容都归入这个领域——不是因为它在技术上是新的发展，而是因为卖得好、能吸引投资。甚至包括超过 50 年的老旧飞机设计，以及新的 eVTOL—这些可能只是一个概念和电脑动画而已。

是的，这些老旧和幻想中的飞机可能会成为未来 LAE 的一部分，但它们既不是核心，也没有对过去十年缓慢增长的通用航空产生实质性影响。

真正的低空经济若要在中国乃至全球成为一个改变游戏规则的潜在力量的关键是，必须建立一个全新的空域结构和空管系统，这一系统需要整合小型无人机、大型无人机、直升机、轻型运动飞机（LSA）及更大型的固定翼飞机、eVTOL、eSTOL 等，使飞行变得轻松。为了实现这一目标，需要一个新系统：将 5G 和 6G 网络、卫星通信、雷达、激光雷达以及基于人工智能的数据处理整合起来，使得可以与全球不断增长的商用飞机交通安全地协调新的空中交通系统。

同时，我们必须让真实的载人与无人 eVTOL 在空中飞行，以积累经验。近年来的经验显示，仅使用审定类 eVTOL 飞行以获取数据的速度太慢。在美国和欧洲，还没有一架 eVTOL 获得认证；在中国，也只有一架载人 eVTOL 获得认证，而且限制还很多（例如只能在视距内飞行等），因而难以形成商业案例。

为了加速飞行器的发展和认证，同时开发适用于 LAE 的新空管系统，我们必须尽可能多地飞行，同时保证安全。因为你无法仅依靠模拟来开发这样的系统，也无法仅通过从小型无人机放大到大型载人运输系统来开发真实的飞机。

2025 年 11 月 16 日，首届“低空经济创新论坛”在深圳举行，最后一场专题讨论由 IEEE 信号处理学会与粤港澳大湾区数字经济研究院低空经济研究中心（IDEA LASER）联合主办。其目标是汇聚所有相关方，共同在大湾区创建低空经济。

在这一点上，地平线上有三道“曙光”：

1. 德国超轻机协会（DULV）重新启动了针对两座个人使用轻型 eVTOL 的技术标准开发项目。这个项目使 Volocopter 在全球进行了数千次飞行（不是按 EASA 的 SC-VTOL 类别！！！），使公司能够快速让飞机飞起来、积累数据和经验，并向全球公众和政策制定者展示载人 eVTOL 是可行的。不幸的是，Volocopter 曾停止了该项目的合作，但现在他们重新加入了，其他公司也在等待加入。
2. 同时，美国新的 MOSAIC-LSA 法规将允许在世界最大的航空市场开发两座个人 eVTOL 飞机。
3. 最后但同样重要的是 FAA 的 103 部超轻型飞机法规。Pivotal 公司证明，只要利用所有的政策自由度，同时设定安全标准来尽量避免错误，就能够在这一类别中飞行、开发并销售安全的飞行器。

所有这些新的载人飞机的飞行在初期都不会在市中心及其他人口稠密地区。然而，它将使飞行员和制造商能够飞行并积累数据和经验，空管系统开发者也可以与有限数量、希望不久获得认证的 eVTOL 一起获取经验——所以让我们一起努力吧。

威利·塔克 ***Willi Tacke***

中文版主编 ***Xin Gou***

Please find the english editorial on the other side of the magazine in the e-flight-journal section at the end of the magazine.

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《自由飞翔与通航》杂志是目前国内唯一一本专注于超轻机、轻型运动飞机、轻型直升机、自转旋翼机等运动航空器以及单发和双发轻型飞机的专业出版物，内容涵盖：

Flying China ist the only Chinese General Aviation magazine which covers everything from Ultralight over LSA, Trikes, light Helicopters and Gyrokopters up to Singel and Twin GA aircraft.

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Gyrocopter in Approach:

More Performance through Innovation

The Gyro principle is more than 100 years old the Chinese-German Joint Venture Pengtai has developed a new rotor and claims through the much Higher Performance to offer more efficiency than other gyros and also plane commercial Gyro-planes. The company Will show its Gyroplane at the AERO Asia ín Zhuhai. Willi Tacke of Flying China magazine talked with the CEO Hubertus Edler von Janecek.

Parallel with the light sport aircraft Pengtai is also working on an unmanded version for civil logistics.

在全球试飞期间，使用的并非 VoloCity，而是超轻型版本，即现

即将到来的新型自转旋翼机：通过创新获得更多性能

自转旋翼机的原理已有100多年历史，中德合资企业江苏鹏泰航空工业开发了一种新型旋翼，并声称通过更高的性能，比其他自转旋翼机甚至商业旋翼机提供更高的效率。公司将在珠海的亚洲通航展上展示。《自由飞翔与通航》杂志的Willi Tacke与首席执行官Hubertus Edler von Janecek进行了交流。

Hubertus Edler von Janecek is ceo of the German and the chinese company.

在全。

Several aircraft of the Pengtai are already flying in Germany as an ultralight.

在全球试飞期间，使

The wings ape providing 30% of the lift in faster flights.

FLYING CHINA: Hubertus since when are you working on new Gyroplanes and what is the Core of your development

Hubertus Edler von Janecek: The Gyrocopter was developed more than 100 years ago, but the major part of this aircraft was nearly not changed over the years. So we worked a lot on this topic.

FLYING CHINA: So what did u change?

HUBERTUS EDLER VON JANECEK: In a classic Gyro the rotor blade has the same profile at the center than at the wingtip. But the speed of the air is much higher at the tip so we developed a blade which has different angles of attack which makes the lift more efficient.

Flying China: And the result is mainly saving fuel?

HUBERTUS EDLER VON JANECEK: Yes but not only. One of the keypoint in commercialisation is that you only can scale up gyros only up to a certain point so if you want to build a larger Gyro to carry mor load its not so easy to just enlarge the Motor and the rotor.

FLYING CHINA: Why not?

HUBERTUS EDLER VON JANECEK: At a certain size the tip speed reaches Mach 1 which causes a lot of noise Vibration and inefficiency with a more efficient roto you can enlarge the Lift but not the tips peed so u can carry more load. The result is more useful load, less noise shorter take off and landing.

FLYING CHINA: We noticed that your rotor has also wings what is the background?

HUBERTUS EDLER VON JANECEK: Even with our advanced rotor - wing borne lift is always more efficient .

FLYING CHINA: so how strong is the effect of the wing? And why is it not even larger when its so efficient.

HUBERTUS EDLER VON JANECEK: In higher speeds the wing effects about 30% of the lift. The size is limited through the effect that the Aircraft still has to fit on a trailer without taking apart.

FLYING CHINA: When and where did you start the development of the aircraft?

HUBERTUS EDLER VON JANECEK: In 2007 with the rotor research than we realized we did not want to become a parts supplier for other manufacturers but have to design an all new airplane to take make all the changes

问：Hubertus，您从什么时候开始研发新型自转旋翼机的？您研发的核心是什么？

Hubertus Edler von Janecek：自转旋翼机的研发已有100多年历史，但这一类飞行器的大部分设计多年几乎未改变。因此我们在这一课题上投入了大量工作。

问：那么你们改了哪些部分？

Hubertus Edler von Janecek：在经典自转旋翼机中，旋翼叶片从中心到翼尖的轮廓是相同的。但空气速度在翼尖明显更高，所以我们开发了一种具有不同攻角的叶片，使升力更高效。

问：主要效果是节省燃料吗？

Hubertus Edler von Janecek：是的，但不仅如此。商业化的关键之一是，自转旋翼机只能在一定程度上放大规模，如果你想制造更大的旋翼机承载更多载荷，不能仅仅通过增大发动机和旋翼来实现。

问：为什么不能？

Hubertus Edler von Janecek：当旋翼达到一定尺寸时，翼尖速度会达到马赫1，这会造成大量噪音、振动和效率低下。通过更高效的旋翼，你可以增加升力，但不增加翼尖速度，从而可承载更大载荷。结果是有用载荷增加、噪音减少、起降距离缩短。

问：我们注意到你们的旋翼机还有机翼，这背后的原因是什么？

Hubertus Edler von Janecek：即使是我们的先进旋翼，机翼承载的升力总是更高效的。

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to create an efficient. And also to have the best revenue from our development.

FLYING CHINA: You are active in several countries, where will be the production and where will you bring the first products to the market.

HUBERTUS EDLER VON JANECEK: In the first years you worked mainly in Germany now there is a German and a Chinese entity. Yes we have a German we have a non-listed public limited company, and in China with our Joint venture partners the JIANGSU PENGTAI AVIATION INDUSTRY CO., LTD. The manufacturing of the plane will

问：那么机翼的效果有多大？既然这么高效，为什么还不做得更大？

Hubertus Edler von Janecek：在较高速度下，机翼贡献约30%的升力。尺寸上受到限制，因为飞行器仍需在不拆解的情况下装上拖车。

问：你们什么时候、在哪里开始研发这款飞机？

Hubertus Edler von Janecek：2007年开始旋翼研究，然后我们意识到不想成为其他厂商的零件供应商，而是必须设计一款全新的飞机，以进行所有改进，创造高效的飞行器，并从我们的研发中获得最佳收益。

**The aircraft can be easily trailered (above)
And in shows around the worlds there was high interrest for an efficiant Gyroplane (right)**

**在全球试飞期间，使用的并非 VoloCity，而是超轻型版本，即现
在的 VoloXpro。**

be in China but one core part - our Composite Rotor we will produce exclusively in Germany for IP reasons. The first serial products we will deliver in China in the LSA class. Later will follow the an unmanned civil cargo drone in China, a German ultralight and for sure also an Gyrocopter under the new MOSAIC LSA rules in USA.
FLYING CHINA: What about certification you have been working with the German AEROCLUB DAeC on an ultralight certification for a while? And what about China.
HUBERTUS EDLER VON JANECEK: In Germany we received the Certification as 600 Kg Ultgralight and in China expect an LSA certification early 2026.
FLYING CHINA: Hubertus thank you for the talk.

The "split "instrument panel design gives a maximum on visibility.

问：你们在多个国家都有业务，生产地点在哪里？第一批产品将投放市场的地点呢？
Hubertus Edler von Janecek：最初几年主要在德国，现在有德国和中国两家实体。德国有一家非上市有限公司，在中国通过合资公司江苏鹏泰航空工业有限公司。飞机的生产将在中国进行，但核心部件——复合材料旋翼将专门在德国生产，以保护知识产权。首批量产产品将在中国的轻型运动飞机（LSA）类别交付。随后将在中国推出无人民用货运无人机、德国超轻型飞机，以及在美国按照新MOSAIC LSA规则的自转旋翼机。

问：关于认证方面，你们一直在与德国航空俱乐部（AEROCLUB DAeC）合作进行超轻型认证，中国方面呢？
Hubertus Edler von Janecek：在德国，我们获得600公斤超轻型认证；在中国，预计将在2026年初获得LSA认证。

问：Hubertus，感谢您的分享。

在全球试飞。

彼岸 PEIPORT

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LAE, MOSAIC and Ultralight

The Chinese Low Altitude Economy (LAE) is over the last two years the hot Keyword for the development of AAM in China. Some people put everything which is connected to GA into this field - not because it's a technically new development but because it sells well and attracts investment. Even more than 50 year old aircraft designs and new eVTOL - where nothing exists more than an idea and an animated computer drawing.
Yes these old and the fantasy aircraft may become part of the future LAE but they are neither the core nor do they make a difference to the very slowly growing GA in the past 10 years.

The key for the potential success of the real LAE as a game changer in China and around the world is that there must be a total new airspace structure and ATC system integrating small drones, large drones, Helicopters, LSA and larger fixed wing aircraft and eVTOL, eSTOL and much more and makes flying EASY. For making this happen a new system is needed: an integration of 5G and 6G networks, satellite communication, radar, Lidar and AI based data processing which enable to safely coordinate all this new traffic with the existing Commercial Airliner Traffic which is growing globally as well .
At the same time we must get real manned and unmanned eVTOL traffic in the air to gain experience. Experience in recent years did show that gaining data only by flying eVTOL in the certified world is too slow. In the US and in Europe not one eVTOL has been certified and in China only one manned eVTOL has received a certification which is so limited (flying only in the line of sight and so on) that it is very difficult to make a business case out of it.

To accelerate the development of the aircraft to certify them and at the same time to develop the new ATC system for this LAE we have to fly, fly and fly as much as possible and as safe as necessary. As you cannot develop such a system just based on simulation and as you also cannot just scale up aircraft from small drones to a large person- and goods transport system with real aircraft.
For this there are 3 silver lines at the horizon:

The final panel discussion of the First "Low-Altitude Economy Innovation Forum" hold in Shenzhen on the 16.11.2025 organized by the IEEE Signal Processing Society jointly with the IDEA LASER Research Institute. The Goal is bringing all the stakeholders together to create the LAE in the greater Bay Area.。

1. The German Ultralight Association (DULV) has re-entered the development of a standard for 2 seat ultralight eVTOLs for personal use. This Program, which made the thousands of flights of the Volocopter around the world possible (No, it was not the EASA SC-VTOL!!!) enabled the company to quickly get the aircraft in the air and to gain data and experience and to show the public and politicians around the world that manned eVTOLs are possible. Unluckily Volocopter stopped the collaboration for the program. But now - they are back and other companies are waiting to join. At the same time the new MOSAIC-LSA rules in the US will also enable the development of 2 seat personal eVTOL in the US - the largest aviation market of the world. And last but not least the FAA Part 103 Ultralight rule: The company Pivotal proved that you can fly, develop and sell safe flying machines in this class if you take all the freedom but set your safety standards which avoids to make mistakes as much as possible. All this new manned aircraft flights will, at the beginning, not happen in city centers and other populated areas.
But it will enable pilots and manufacturers to fly and gain data and experience the developers of the ATC systems together with the few eVTOLs hopefully soon to be certified . So let's work together on this.

Willi Tacke
Xin Gou

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Turn page - Flying China

We the **eFlight Journal (eFJ)** founders are a team of aviation journalists and enthusiasts who created Flying-Pages. Publishing several aviation publications around the world. It started with the interest in electric flying in 2009.

We co-founded the e-flight-Expo in Friedrichshafen/Germany as part of the AERO, and established it as the largest show for electric aviation worldwide.

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Beta Went IPO with $7.4 billion valuation

BETA Technologies (BETA.US) made its debut on the New York Stock Exchange on November 4, 2025, with its stock closing up 5.88% at $36 per share. Previously, the company had set its IPO price at $34 per share, higher than the previously estimated range of $27-33. According to the prospectus, the IPO issued a total of 29.9 million shares, raising over $1 billion, with the company valued at approximately $7.4 billion. Beta's market value surpasses one of the eVTOL leaders, Archer Aviation (ACHR.US) ($6.1 billion), and also exceeds half the market value of leading stock Joby Aviation (JOBY.US) ($13 billion). This IPO is currently the largest in the low-altitude economy and electric aircraft sector (the market value of Joby at its IPO was $4.5 billion), making it a milestone event in the global low-altitude economy, particularly in the eVTOL sector.

Beta 完成上市，估值 74 亿美元

电动垂直起降 (eVTOL) 行业迎来关键时刻，BETA Technologies(BETA.US) 于 2025 年 11 月 4 日 (周二) 在纽约证券交易所完成上市首秀，当日收盘股价上涨 5.88% 至每股 36 美元。此前，该公司已将其 IPO 发行价定为每股 34 美元，高于此前预估的 27–33 美元区间。根据招股说明书披露，此次 IPO 共发行 2990 万股股票，实际募资超过 10 亿美元，公司估值达到约 74 亿美元。

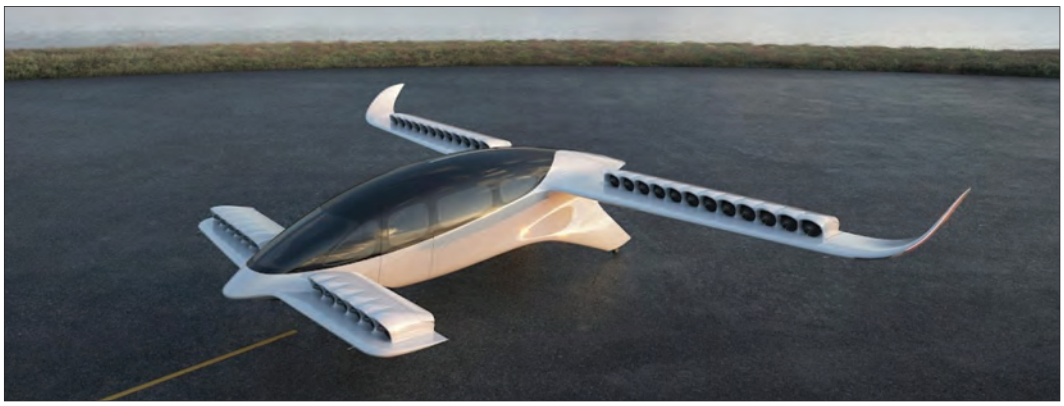
据报道，这一市值已超过了 eVTOL 龙头之一的 Archer Aviation(ACHR.US)(61 亿美元)，也超过了龙头股 Joby Aviation(JOBY.US) 市值的一半 (130 亿美元)。此次 IPO 是目前低空经济领域规模最大的 IPO 项目 (Joby 公司当年 IPO 时的市值也仅为 45 亿美元)，可谓全球低空经济尤其是 eVTOL 领域的里程碑事件。

ICON Aircraft Founder Died in Accident

Kirk Hawkins, a former US Air Force pilot who co-founded ICON Aircraft, died Aug. 19, 2025, in a wingsuit accident in the Swiss Alps. Hawkins was forced out as CEO of ICON Aircraft in November 2018. The company is now owned by the ShangGong Group based in Shanghai, China, which also purchased The German light aircraft company Flight Design.

ICON Aircraft 创始人在事故中去世

美国空军前飞行员、ICON Aircraft 联合创始人柯克 · 霍金斯 (Kirk Hawkins) 于 2025 年 8 月 19 日在瑞士阿尔卑斯山的一次翼装飞行事故中去世。霍金斯于 2018 年 11 月被迫辞去 ICON Aircraft 首席执行官职务。该公司现由位于上海的上工申贝集团拥有，该集团还收购了德国轻型飞机公司 Flight Design。



Archer 收购 Lilium 及机场资产

十月，Archer Aviation 赢得了竞争性投标过程，以 1800 万欧元收购破产的 Lilium GmbH 大约 300 项先进空中出行专利资产的组合，这些专利涉及高压系统、电池管理、先进飞机设计、飞行控制、电动引擎、螺旋桨和导管风扇等关键创新。11 月，Archer 签署协议，以 1.26 亿美元现金收购位于南加州的 Hawthorne 市政机场（HHR）的控股权，使该机场成为其计划中的洛杉矶空中出租网络的运营基地，同时也是基于人工智能的航空技术测试平台。

Archer Acquired Lilium and Airport assets

In October Archer Aviation won the competitive bid process to acquire Lilium GmbH's portfolio of ~300 advanced air mobility patent assets for Euro 18M, including patents relating to key innovations in high-voltage systems, battery management, advanced aircraft design, flight controls, electric engines, propellers, and ducted fans. In November Archer signed agreements to acquire control of Hawthorne Municipal Airport (HHR) in Southern California for $126 million in cash, positioning the site as both an operations base for its planned Los Angeles air-taxi network and a testbed for artificial-intelligence-based aviation technologies.

Odys Aviation 完成 2600 万美元 A 轮融资

美国 eVTOL 初创公司 Odys Aviation 宣布完成 2600 万美元 A 轮融资，由 Nova Threshold 领投，Tuchen Ventures 和关键内部人士参与投资。本轮融资将用于加速其名为 “Laila” 的全尺寸原型机的试飞工作并扩充团队规模。Odys 公司 2019 年在加州成立，专注于研发混动军民两用 eVTOL，团队成员包括来自波音、SpaceX、湾流、美国国防部等机构。A 轮融资是在 Odys 成功集成和测试其混合动力推进系统，并完成 JARUS/SORA 2.5 框架下的关键设计和适航里程碑之后进行的。Odys 公司的设计采用有特色的盒状机翼。

Odys Aviation Completed Series A financing

American eVTOL startup Odys Aviation announced the completion of a $26 million Series A financing round, led by Nova Threshold, with participation from Tuchen Ventures and key insiders. The funds from this round will be used to accelerate the test flights of its full-size prototype named “Laila” and to expand the team. Odys was founded in California in 2019 and focuses on developing hybrid military-civilian eVTOLs. Its team includes members from Boeing, SpaceX, Gulfstream, and the U.S. Department of Defense. The Series A round came after Odys successfully integrated and tested its hybrid propulsion system and achieved key design and airworthiness milestones under the JARUS/SORA 2.5 framework. Odys' design features distinctive box-shaped wings.

Regent s prototype had an accident in test flight

On November 3, the "Viceroy," a 12-seat full-scale prototype of the electric hydrofoil ground-effect vehicle by the U.S. startup Regent, crashed into the water during a test flight. Regent stated that there were no casualties and that the prototype will be repaired as soon as possible to continue project development. Founded in 2020, Regent's hydrofoil ground-effect vehicle is fully electric, with a designed cruise speed of 290 km/h and a range of 290 km. It uses multi-engine distributed electric propulsion (DEP), and its most notable feature is the use of hydrofoil skids for water takeoff and landing. Electric hydrofoil ground-effect vehicle are classified as vessels, so they do not require airworthiness certification but need vessel certification.

Regent 电动水翼型地效飞行器原型机试飞中失事

11 月 3 日，美国电动水翼型地效飞行器初创公司 Regent 的“Viceroy”12 座全尺寸原型机在试飞中失事落水。Regent 公司表示没有人员伤亡，将尽快修复原型机继续项目研发。Regent 成立于 2020 年，该水翼型地效飞行器为全电动，设计巡航速度 290 公里每小时，航程 290 公里，采用多发分布式电驱（DEP），最大特点是采用水翼滑橇用于水面起降电动水翼型地效飞行器被归入船舶，因此无须进行航空器的适航审定，而需要进行船舶认证。

Chinese Pilot Competes in FAI Aerobatics Championship for the First Time

Chinese pilot Yan Cong represented China at the 16th FAI World Advanced Aerobatic Championship (WAAC) held in Hungary in September. He overcame several disadvantages, including using a borrowed aircraft, a cockpit seat that was not suited to his habit, and very limited familiarization training time before the competition, to achieve 21st place among 38 participating pilots. This marks the first time a Chinese pilot has participated in any form or organization of aerobatic competition. He will compete next year in the FAI World Aerobatic Championship (WAC) to be held in the United States.

中国飞行员首次参赛国际航联特技锦标赛

中国飞行员严聪代表中国队出赛 9 月在匈牙利举行的第 16 届国际航联（FAI）世界特技飞行高级组锦标赛（WAAC）。他克服了参赛飞机是当地借来的、不适合自己习惯的座舱布置、赛前熟悉训练时间极短等诸多不利因素，在 38 名参赛飞行员里荣获第 21 名。这是中国飞行员首次参加任何形式和组织的特技飞行比赛。他将参加明年在美国举行的 FAI 世界特技飞行无限制组锦标赛（WAC）。

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扎根中国，跨越国界 ROOTED IN CHINA, SOARING BEYOND BORDERS

Piloted Solar-powered airplane set altitude record

On Tuesday, August 12, 2025, Swiss pilot Raphaël Domjan took off from Sion Airport in Switzerland, flying the solar-powered manned aircraft named SolarStratos to an altitude of 9,521 meters over the Alps in the canton of Valais. This surpassed the previous record of 9,235 meters set by Solar Impulse, making it the world's highest-flying manned electric aircraft and manned solar-powered aircraft. The certification of this record is underway with the Fédération Aéronautique Internationale (FAI), which will verify the corrected altitude according to its standards as the official record height. The record-setting flight lasted a total of 5 hours and 9 minutes. Raphaël Domjan will continue his attempts, aiming for the SolarStratos project's goal of flying a manned solar-powered aircraft to stratospheric altitudes.

有人驾驶太阳能飞机创造飞行高度新纪录

2025 年 8 月 12 日，星期二，瑞士飞行员拉斐尔 · 多姆扬（Raphael Domjan）从瑞士的锡永机场（Sion airport）起飞，驾驶名为 SolarStratos（太阳平流层）的太阳能电驱载人飞机，飞到了瓦莱州阿尔卑斯山上空 9521 米的高度，超过了阳光动力号（Solar Impulse）此前 9235 米的纪录，成为世界上飞行高度最高的载人电动飞机和载人太阳能飞机。这项纪录的认证工作正在与国际航空联合会（FAI）进行，FAI 将根据其标准验证修正后的高度作为正式的纪录高度。这次飞行共历时 5 小时 9 分。接下来 Raphael Domjan 将继续尝试，向 SolarStratos 项目的目标：载人太阳能电驱飞机飞到平流层高度努力。

EU Allocates € 945 million to Clean Aviation

On September 11, the European Union's Clean Aviation Joint Undertaking announced that it has allocated €945 million to 12 projects aimed at reducing carbon emissions from commercial air travel. Since the call for proposals in February, the third round of selected projects includes several major aerospace manufacturers developing new aircraft and propulsion system concepts. Of the €945 million funding provided by the EU, the Clean Aviation initiative has granted €199 million to three projects focused on efficient short- and medium-range aircraft technologies, €144 million to three projects on efficient regional aircraft technologies, €20 million to four projects categorized as "Fast-Track Areas," and €15 million to cross-cutting projects dedicated to Aircraft Concept Integration (ACI) and impact assessment. The Clean Aviation Joint Undertaking's Management Board stated that the selected projects could reduce commercial aviation greenhouse gas emissions by at least 30% over the next 10 years. The winning projects will begin work under contracts in early 2026, with flight tests of their results expected in 2028 and 2029..

欧盟向 12 个航空减排项目拨款 9.45 亿欧元

9 月 11 日，欧盟设立的“清洁航空联合计划”（Clean Aviation Joint Undertaking）宣布，已向 12 个旨在降低商业航空旅行碳排放的项目拨款 9.45 亿欧元。自 2 月份征集提案以来，第三轮获得拨款的中标申报项目包括几家正在开发新型飞机和推进系统概念的大型航空航天制造商。在欧盟提供的 9.45 亿欧元资金中，清洁航空倡议向三个涉及高效中短程飞机技术的项目拨款 1.99 亿欧元，向三个高效支线飞机技术项目拨款 1.44 亿欧元，向四个被归类为“快通道领域”的项目拨款 2000 万欧元，向致力于飞机概念集成（ACI）和影响评估的横向项目拨款 1500 万欧元。清洁航空联合项目管理委员会称，入选项目可在未来 10 年内将商业航空的温室气体排放减少至少 30%，中标项目将于 2026 年初根据合同开始工作，预计将于 2028 年和 2029 年对其成果进行飞行测试。

时的 eVTOL 原型机载多人试飞

上海 eVTOL 企业时的科技 10 月在完整构型下成功完成 E20 原型机载多人飞行试验。时的创始人兼 CEO 黄雍威与首席飞行员两人一同完成这次飞行任务。E20 此前已经完成了 1000 次试飞。E20 采用倾转旋翼构型，搭载纯电驱动系统，可载 5 人，具备垂直起降能力，最高时速可达 320 公里／小时，单次航程达 200 公里。

Tcab eVTOL prototype made test flight with people

American eVTOL startup Odys Aviation announced the completion of a $26 million Series A financing round, led by Nova Threshold, with participation from Tuchen Ventures and key insiders. The funds from this round will be used to accelerate the test flights of its full-size prototype named “Laila” and to expand the team. Odys was founded in California in 2019 and focuses on developing hybrid military-civilian eVTOLs. Its team includes members from Boeing, SpaceX, Gulfstream, and the U.S. Department of Defense. The Series A round came after Odys successfully integrated and tested its hybrid propulsion system and achieved key design and airworthiness milestones under the JARUS/SORA 2.5 framework. Odys’ design features distinctive box-shaped wings.

现代汽车 AAM 部门 CEO 离职

8 月 27 日，现代汽车旗下 eVTOL 子公司 Supernal 发布公告称，其 CEO 兼现代集团先进空中交通 AAM）总监、韩裔美国人申在元博士（Jaiwon Shin）将于本月底从 CEO 岗位离职，转任该公司顾问。申在元是 NASA 前副局长，2019 年加入现代汽车成立的 AAM 部门担任负责人，2021 年现代汽车在美国成立 Supernal 子公司进行 eVTOL 研发，申在元出任 CEO。现代汽车在 Supernal 公司已经投入了约 15 亿美元，但到目前为止，Supernal 的 eVTOL 原型机还没有首飞，只进行过重大设计修改，2024 年 1 月公布了新设计。

Hyundai s AAM CEO left the position

On August 27, Supernal, the eVTOL subsidiary of Hyundai Motor Company, announced that its CEO and Hyundai Motor Group Advanced Air Mobility (AAM) director, Korean-American Dr. Jaiwon Shin, will step down from his CEO position at the end of this month and transition to an advisory role at the company. Shin, a former NASA deputy administrator, joined Hyundai’s AAM division in 2019 as its head. In 2021, Hyundai established the U.S.-based Supernal subsidiary to conduct eVTOL development, with Shin serving as CEO. Hyundai has invested approximately $1.5 billion in Supernal, but so far, the company’s eVTOL prototype has not yet flown, only undergoing major design changes, with a new design revealed in January 2024..

Shenzhen s low altitude operation are fast growing

Statistics from the Shenzhen Municipal Transportation Bureau show that last year Shenzhen completed 776,000 drone logistics deliveries, a year-on-year increase of 27.0%. From January to August this year, drone cargo flights increased by 57% year-on-year. Manned low-altitude flights are also gradually moving from a 'niche' to a 'mainstream.' In 2024, Shenzhen completed 28,000 manned helicopter flights, a year-on-year increase of 21.0%; from January to August 2025, Shenzhen completed 21,000 manned helicopter flights, an increase of 20.0%, with 59 new low-altitude logistics routes added, bringing the total to 309, and more than 1,000 low-altitude take-off and landing points built. Currently, Shenzhen has established 10 low-altitude economic industrial parks and 2 specialized industrial parks, with over 1,900 enterprises in the low-altitude economy chain. In 2024, the added value of enterprises above designated size in the low-altitude economy and aerospace industrial clusters reached 21.377 billion yuan, an increase of 26.4%, and in the first half of 2025 reached 15.292 billion yuan, an increase of 29.4%.

深圳低空运行数据大幅增长

市交通运输局统计数字显示，去年深圳实现无人机物流配送 77.6 万架次，同比增长 27.0%。今年 1 至 8 月，无人机载货飞机架次同比增长 57%。低空载人也逐步从“小众”走向“大众”。2024 年深圳市已实现直升机载人飞行 2.8 万架次、同比增长 21.0%；2025 年 1–8 月，深圳市完成直升机载人飞行 2.1 万架次、增长 20.0%，新增低空物流航线 59 条、累计开通 309 条，累计建成低空起降点超过 1000 个。目前深圳市建成 10 个低空经济产业园区和 2 个特色产业园区，低空经济链上企业超 1900 家，2024 年低空经济与空天产业集群规上企业增加值达 213.77 亿元，增速 26.4%，2025 年上半年达 152.92 亿元，增速 29.4%。

CAAC Issued "General Aviation Operation Regulations"

On October 23, CAAC issued the “General Aviation Operation Regulations” (Draft for Comments). This revision, based on the nature of business activities, focuses on ten typical application scenarios of general aviation and low-altitude economy, and redefines the categories of general aviation business projects. It divides commercial general aviation activities into five major categories: 'Passenger Transport,' 'Manned Flights,' 'Cargo Transport,' 'Training,' and 'Others,' and specifies the legal obligations and regulatory requirements for each type of general aviation enterprise. In addition, the regulation's name has been changed from the “Regulations on the Administration of General Aviation Operation Permits” to the “General Aviation Operation Regulations.” The original requirements, procedures, and other content of general aviation operation permits are incorporated into the “Procedures for the Administration of General Aviation Operation Permits,” while the “General Aviation Operation Regulations” focus on regulating the general aviation market operations, legally compliant enterprise management, and supervision.

民航局发布《通用航空经营管理规定》

10 月 23 日，民航局运输司发布《通用航空经营管理规定》（征求意见稿）。此次修订，按照经营活动性质，聚焦通用航空和低空经济十大典型应用场景，重新划分通用航空经营项目类别，将经营性通用航空活动分为“载客”“载人”“载货”“培训”和“其他”五大类，并分类明确各类通用航空企业的法律义务和监管要求。此外，规章名称由《通用航空经营许可管理规定》修改为《通用航空经营管理规定》，将原通用航空经营许可的条件、程序等内容并入《通用航空运营许可程序管理规定》，《通用航空经营管理规定》侧重对通用航空市场经营、企业依法合规经营和事中事后监管进行规范。

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Sustainable Aviation Forum at AERO Asia

AERO Asia and Flying Pages will jointly organize and host the "Sustainable Aviation Forum" from 9:00 to 17:00 on 28 November during AERO Asia which will held from 27-30 November in Zhuhai China. The event will dedicate to the latest development of the low-altitude economy, advanced air mobility, and clean aviation technologies, aligning with China's goals to expand this sector to a projected value of USD 280 billion by 2030. The forum is free of charge for AERO Asia visitors. The event will cover six topics this year including certification and policy making, electric fixed wing airplane, eVTOL, AI and infrastructure, commercialization and use cases, and electric propulsion and energy sources such as battery and hydrogen. For more information and registration: https://aero-asia.com

可持续航空论坛
(Sustainable Aviation Forum)

为促进我国航空技术创新、全产业链发展和国际科技交流合作，珠海航展集团有限公司与德国飞页有限公司将于亚洲通航展期间于2025年11月28日上午9点至下午5点在珠海国际航展中心举行第二届可持续航空论坛（Sustainable Aviation Forum）。论坛将致力于介绍以电动技术为引领的可持续航空技术最新动态和产品，发掘近期市场机会，对接中外相关企业，探索有效投资模式。论坛目标是成为我国与世界可持续航空产业融合发展、航空科技引领、产业链聚集的展示窗口、沟通平台和投资渠道，推动可持续航空技术在我国的产业化发展，使得可持续航空技术成为我国航空业碳达峰、碳中和发展目标及低空经济发展的重要抓手。详情请见：

https://aero-asia.com

Volocopter:

Ultralight on the rise

After the takeover by the Chinese Wanfeng Group, which also owns the Diamond Aircraft Group, there were fears that the technology accumulated over more than ten years by the German company Volocopter would flow to Asia. But Volocopter is not only reaffirming its location in Bruchsal, Germany, and the resumption of various models such as the VoloRegio, but also its return to the eVTOL testing program of the DULV with the aim of obtaining UL certificate for the VoloXPro. So will there soon be a first two-seater UL-certified electric vertical takeoff aircraft in Germany? We spoke with David Bausek, CTO at the Diamond Aircraft Group, about the strategy, timeline, and potential synergies between Diamond and Volocopter.

UL Volocopter over Osaka in Japan

崛起的超轻型

在被同时拥有钻石飞机的中国万丰奥威集团收购后，欧洲有人担心德国公司Volocopter十多年来积累的技术可能会流向亚洲。但Volocopter不仅重申其总部仍然位于德国布鲁赫萨尔，以及VoloRegio等多款机型的复产计划，还重新加入了DULV的eVTOL测试项目，旨在为VoloXPro获得UL认证。那么，德国是否很快会出现第一款双座UL认证的电动垂直起降飞行器呢？我们与钻石飞机的首席技术官David　Bausek进行了交流，讨论了其战略、时间表以及钻石飞机与Volocopter之间可能的协同效应。

超轻型 Volocopter 飞行在日本大版上空

The Volocopter VC 1 flew in 2011 as the world's first manned multicopter. The two-seater VC 200 flew for the first time in 2016 as an ultra-light Multicopter with prototype certification in the DULV test program. When start-ups discovered commercial air taxis as a new business model worldwide after the first Uber Elevate meeting in 2017, Volocopter also changed course. From then on, the company relied on the EASA SC VTOL and removed UL approval from the agenda. After the insolvency last year and the takeover by Wanfeng, however, the Company from Karlsruhe is now returning to its business As a first certification, the aim is to complete the German UL approval as soon as possible. Only then will models with EASA certification follow.

There was a show, but no transports in Paris: the VoloCity was grounded due to lack of registration; only the ultralight XPro flew a demo.

History

When we started the e-Flight Expo at the AERO in 2009, there were some electric UL trikes and the first three-axle vehicles were already taking off electrically. These were mostly ultra-light motorgliders, because the energy density of the available batteries was much less than today. So the aircraft had to be as light and efficient as possible. Then in 2012 came the news that there was to be a new start-up from Karlsruhe that was building an aircraft that could not only fly electrically, but also take off and land

Milestones in history: Thomas Senkel with the yoga ball (left page) and Alex Zosel during the first manned UL eVTOL flight.

历史里程碑：托马斯·森克尔（Thomas Senkel）与瑜伽球（上图）以及亚历克斯·佐塞尔（Alex Zosel）在首次载人飞行中

Volocopter VC 1 于 2011 年首飞，是世界上第一架载人多旋翼飞行器。双座 VC 200 于 2016 年首飞，是一款超轻型多旋翼飞行器，并获得了德国超轻机协会（DULV）的适航认证。2017 年，在首届 Uber Elevate大会之后，随着全球初创企业将空中出租车视为一种新的商业模式，Volocopter 也随之改变了发展方向。从那时起，该公司开始转向EASA SC VTOL类别适航审定，从而放弃了超轻型认证。然而，在去年破产并被万丰奥威收购后，这家来自卡尔斯鲁厄的公司如今的业务规模远不如从前。

巴黎航展举办了，但没有UAM：VoloCity 由于未能完成认证而无法飞行；只有超轻型的XPro 进行了演示飞行。 作为首个eVTOL认证项目，Volocopter的目标是尽快完成德国超轻型（UL）认证。只有这样才能推出EASA审定类型号。

历史

2009 年我们在 AERO 展会上首次举办 e-Flight Expo 时，市面上已经出现了一些电动超轻型动力三角翼，第一批电动固定翼也已经开始起飞。这些大多是超轻型动力滑翔机，因为当时电池的能量密度有限。因此电动飞机必须尽可能轻而高效。 2012年，传出消息称卡尔斯鲁厄一家初创公司正在研发一种不仅可以电动飞行，还能垂直起降的飞机——一种所谓的eVTOL（电动垂直起降飞行器）

The VoloCity has so far only flown unmanned at its home airfield in Karlsruhe. The lack of certification kept it on the ground for a long time.

vertically – a so-called eVTOL, although this term did not even exist at the time. But the company was called very similarly at the time: e-Volo. But because the automotive company Volvo feared confusion with its own company name, the name of the first aircraft – Volocopter – was adopted as the company name.

The term "aircraft" for the extraordinary first product was already very exaggerated. Rather, it was reminiscent of an oversized "yoga ball" on which a pilot's seat was mounted and four angular arms, each with four electric motors attached. The motors used came from model making.

What could be more obvious than to use a radio remote control for the control as well. This saved a lot of cables. Actually, the first prototype called VC1 with the rubber ball was only supposed to fly unmanned like a model, with the rubber ball serving as damping in hard landings to protect the technology. But because the machine flew surprisingly stable unmanned, the three company founders Stephan Wolf, Alex Zosel and Thomas Senkel decided that nothing would stand in the way of the first manned flight. So a "pilot" seat was mounted and Thomas Senkel, the lightweight of the trio, became the world's first human eVTOL pilot to take off. The revolutionary idea and implementation were then presented to the world at the AERO 2012 at the Flying Pages booth, the home of all ultralight aircraft.The next question was how such an aircraft, a manned multicopter, could be legally launched into the air. Since there was no class for such aircraft, but the design was very light, the ultralight aircraft and together with the German Ultralight Flying Association (DULV) were agreed to do the same as in previous years when new ultralight aircraft were introduced: a test program for eVTOLS was set up. Thus, the first eVTOLs that took off legally in the following years were ultralight aircraft. At that time, no one thought of commercial use.

The VC Evolution, which also had a pusher propeller, was also to be launched as a UL. The VC 200, which was presented in 2013 – again at the e-Flight Expo as part of the AERO – was also a UL. In the same year, it flew for the first time (unmanned in a hall for safety and approval reasons). In 2016, the VC 200 took off for the first time with co-founder Alex Zosel with a "Delta Mike" license plate (D-MYVC). This was made possible by prototype approval as part of the testing program. But soon other companies came along with similar, but also completely different eVTOL prototypes. The General Aviation Manufacturers Association also launched its electric flight EPIC program in 2016, which also covered eVTOLs. And when, another year later, Uber launched the new idea with its Elevate program that it wanted to use eVTOLs as air taxis to solve the traffic problems of cars in the world's megacities, Volocopter also jumped on the bandwagon of commercial use. Although the Volocopter 2X still roughly fit into the UL weight class (especially since this was later increased to 600 kg), an ultralight aircraft is not allowed to be used commercially in Germany, especially for passenger transport. But only with the intended commercial use could business plans be drawn up that could justify the immense investment costs to potential investors.

So Volocopter dropped the idea of a UL product and had to obtain a traffic approval. The European aviation authority EASA in Cologne is responsible for this, but it initially had no class in which these new aircraft could fit. After all, it was not a classic fixed-wing aircraft because it could take off and land vertically, but it was not a helicopter either. While in the USA attempts were made to integrate the eVTOLs into the existing classes FAA Part 23 (fixedwing aircraft) or Part 27/29 (rotorcraft) with special conditions, depending on their technical approaches, EASA set about creating a completely new category, the SC-VTOL: It stipulated that commercial eVTOLs (Enhanced category) must be as safe as commercial airliners. A fatal accident must only occur with a probability of 10-9, and there must be no "single point of failure", i.e. a single source of error that causes a catastrophic accident on its own. Incidentally, none of the helicopters certified today would meet these conditions. Some requirements have been modified so that certain commercial applications can soon be carried out with eVTOLs in the Basic category. But the consequences of the extremely high hurdles are clearly foreseeable: In the end, not a single eVTOL has been approved since the introduction of the SCVTOL, even though the two leading German companies involved, Volocopter and Lilium, alone employed many hundreds of approval engineers and spent hundreds of millions. Both companies had to file for bankruptcy at the end of 2024. Lilium has since been dissolved, the patents sold to the USA, and Volocopter has been taken over by the Chinese Wanfeng Group, which already owns Diamond Aircraft.

The New Approach

Wanfeng wants to keep Volocopter's development and production capacities in Europe, as it does with the Austrian Diamond Aircraft, and also continue to pursue the approval paths it has taken. At the same time, however, the company wants to generate synergy effects between the companies with the development sites in Europe, Canada and China. Volocopter's headquarters will remain in Karlsruhe and the workforce has been reduced to 150 employees initially."

After a comprehensive analysis of Volocopter's development so far, we have drawn different conclusions," says

The company Volocopter (at that time it was still called e-Volo) had its first public appearance worldwide at the AERO 2012 at the e-flight-Expo at the booth of Flying Pages, the publisher of the Flying China and e/flight/Journal.

Volocopter 公司（当时仍名为 e-Volo）在 2012 年德国 AERO 航展上首次公开亮相。当时在 FLÜGEL 杂志出版商 Flying Pages 的展位上参加了 e-flight-Expo 专展。

，尽管当时这个术语还不存在。这家公司当时的名字跟现在非常相似：e-Volo。然而，由于汽车公司沃尔沃表示这容易与其名称混淆，最终采用了第一架飞机的名称——Volocopter——作为公司名称。

用“飞机”来形容这款非凡的首款产品其实已经有些夸张了。它更像是一个巨大的“瑜伽球”，上面安装了一个飞行员座椅和四个呈一定角度的机械臂，每个机械臂上都连接着四个电动机。这些电动机来自航模，使用无线遥控器进行控制，这自然是再简单不过了。这样就省去了很多线缆。实际上，这款名为VC1的原型机，最初只是打算像模型一样进行无人驾驶飞行，橡胶球的作用是在硬着陆时起到缓冲作用。但由于这架机器在无人飞行时出奇地稳定，公司的三位创始人——斯蒂芬·沃尔夫、亚历克斯·佐塞尔和托马斯·森克尔——决定进行首次载人飞行。于是，他们安装了一个“飞行员”座椅，三人中最轻的托马斯·森克尔成为了世界上第一位驾驶电动垂直起降飞行器（eVTOL）起飞的飞行员。这项革命性的理念和实施方案随后在2012年AERO展会的Flying Pages展位上向世界亮相，该展位是所有超轻型飞机的聚集地。接下来的问题是如何合法地让这种载人多旋翼飞行器升空。由于当时没有针对此类飞机的分类，但其设计非常轻巧，因此公司与德国超轻机协会（DULV）达成一致，决定沿用往年推出新型超轻机时的做法：建立eVTOL测试项目。因此，在接下来的几年里，首批合法起飞的eVTOL都是超轻型飞机。当时还没有人考虑过商业用途。同样采用推进式螺旋桨的VC Evolution也计划作为超轻型飞机推出。2013年在AERO展会期间的e-Flight Expo上亮相的VC 200同样也是一款超轻型飞机。同年，它进行了首次试飞（出于安全和审批原因，在室内无人驾驶）。2016年，VC 200由联合创始人Alex Zosel驾驶，以“Delta Mike”（D-MYVC）尾号首飞。这得益于原型机作为测试项目的一部分获得了批准。但很快，其他公司也推出了类似但又完全不同的eVTOL原型机。通用航空制造商协会（GAMA）也在2016年启动了电动飞行器EPIC项目，该项目也涵盖了eVTOL。一年后，当Uber推出其Elevate项目，提出利用eVTOL作为空中出租车来解决世界特大城市的交通拥堵问题时，Volocopter也加入了商业应用的行列。尽管Volocopter 2X的重量仍然大致符合超轻型飞机（UL）的范畴（尤其是在后来重量限制提高到600公斤之后），但在德国，超轻型飞机不允许用于商业用途，特别是用于客运。然而，只有确定了商业用途，才能制定出足以向潜在投资者证明其巨额投资成本合理的商业计划。因此，Volocopter放弃了超轻型飞机的计划，转而申请审定类型号合格证（TC）。位于科隆的欧洲航空安全局（EASA）负责该TC审定，但最初并没有一个合适的类别来归类这些新型飞机。毕竟，它既不是传统的固定翼飞机（因为它能够垂直起降）也不是直升机。在美国，人们曾尝试根据各自的技术方案，以专用条件

The VoloRegion, a 4-seater with wings, is also to be resumed when the first registrations have been completed and appear in 2030.

复合翼的四座 VoloRegion 项目也将重启，预计 2030 年完成适航审定

David Bausek. “We have resumed some of the activities that had initially been stopped, others have been postponed.” For example, the company has actively reentered the eVTOL testing program with the DULV, which is very much welcomed by the DULV, after those responsible there had previously been very annoyed when Volocopter decided years ago that there would be no ultralight products and that UL approval would not be completed. “I and my colleagues at the DULV were very disappointed,” recalls Jörg Seewald. At the time, the current chairman of the DULV was involved with Volocopter as a technical officer for the eVTOL certification program. “Because as a pilots’ association, we naturally only want to make new flight classes possible, which will later also be open to the members.” A manufacturer who sees the UL approach only as a cost-effective, fast shortcut for a certified aircraft that will later only be marketed commercially was naturally not in the association’s interest. The DULV proceeded in the same way with eVTOLs as it did with gyrocopters or UL helicopters: In a test program, the basis for a new category is determined together with the manufacturers. This is a triangle of technical approval principles, the licensing of pilots for these aircraft and the framework conditions for operation. After completion of the testing program, which is being carried out in cooperation with the supervisory authority LBA, the final report will then be sent to the Federal Ministry of Transport, where a decision will then be made as to whether and how the new category can be approved as a UL in Germany.” That’s why we can’t speak directly of approval at the moment, because we first have to define the framework for this together with the manufacturers in the test program,” says Seewald. “There are certainly still some details to be worked out, for example how we can test and approve the software and hardware of the electronic control of these devices. That’s something completely different than testing the control rods in a three-axle vehicle. We know how to do it. The situation is completely different with electronics and software, we certainly need the support of the manufacturers and perhaps also some research institutes.”

Registration, Timeline and Models

As with Diamond Aircraft, the Wanfeng Group is also relying on the proven and synergy effects of its locations in Europe, Asia and America with Volocopter. Especially when it comes to certification, the real sticking point of the entire eVTOL industry, the company believes it can benefit from its rich experience. “In recent years, we have certified and validated more than 20 aircraft on three continents with EASA, CAAC and Transport Canada,” says Bausek. “Above all, we will make a clear prioritization and not tackle as many projects at the same time as before. The two-seaters VoloCity EASA certification is already very advanced, and we hope to be able to complete the certification by the end of next year. We have a confirmed certification base, a “conforming prototype” (a test ve-

During the test flights around the world, it was not the VoloCity that was used, but the UL version, which is now called VoloXpro. Most of the time it was flown only in a single-seater.

在全球试飞期间，使用的并非 VoloCity，而是超轻型版本，即现 在的 VoloXpro。

将eVTOL整合到现有的FAA Part 23（固定翼飞机）或Part 27/29（旋翼机）类别中。与此同时，EASA着手创建了一个全新的类别——SC-VTOL。该类别规定，商用eVTOL（增强型）必须与商用客机一样安全。致命事故的发生概率必须低于10^{-9}，并且不得存在“单点故障”，即不能存在任何单一故障源导致灾难性事故。顺便一提，目前所有获得适航证的直升机都无法满足这些条件。一些要求已经过修改，以便某些商业应用能够很快在基本型类别中使用eVTOL。但这些极高的适航审定门槛带来的后果显而易见：自SC-VTOL问世以来，没有一款eVTOL通过适航审定。尽管两家德国龙头企业Volocopter和Lilium雇佣了数百名工程师，并投入了以亿计美元。这两家公司最终都在2024年底申请破产。Lilium此后解散，其专利被出售给美国的Archer公司，Volocopter则被中国的万丰奥威集团收购，后者旗下还拥有钻石飞机公司。

新方法

万丰希望像对待奥地利钻石飞机公司一样，将Volocopter的研发和生产能力保留在欧洲，并继续推进已采取的适航审定流程。与此同时，该公司希望利用其位于欧洲、加拿大和中国的研发基地，在两家公司之间产生协同效应。Volocopter的总部将继续设在卡尔斯鲁厄，员工人数最初已缩减至150人。“在对Volocopter迄今为止的研发情况进行全面分析后，我们得出了不同的结论，”David Bausek表示，“我们恢复了一些最初暂停的工作，另一些则被推迟。”例如，该公司已积极重新参与与DULV的eVTOL测试项目，DULV方面对此表示非常欢迎。此前，Volocopter多年前决定不再生产超轻型飞机产品，并且不会完成UL认证，这曾令DULV方面非常不满。 “我和DULV的同事们都非常失望，”约尔格·泽瓦尔德回忆道。当时，现任DULV主席正担任Volocopter公司的技术官员，负责eVTOL认证项目。“因为作为飞行员协会，我们自然只希望推出新的飞行类别，并且这些类别最终也能向会员开放。” 如果制造商仅仅将超轻型飞机（UL）认证视为一种经济高效、快速获得认证的捷径，而这些认证的eVTOL最终也只会用于商业销售，那么这显然不符合协会的利益。DULV对eVTOL的处理方式与旋翼机或超轻型直升机相同：通过测试项目，与制造商共同确定新类别的基础。这是技术审批原则、飞行员执照和运营框架条件的三者之间的关系。 “在与德国民航局（LBA）合作开展的测试项目完成后，最终报告将提交给联邦交通部，由其决定是否以及如何批准该新类别在德国获得UL认证。”Seewald表示，“这就是为什么我们目前还不能直接谈论认证，因为我们首先需要与测试项目中的制造商共同制定认证框架。当然，还有一些细节需要敲定，例如如何测试和认证这些设备电子控制的软硬件。这与测试普通飞机的操纵杆完全不同。我们知道如何测试传统操纵杆，但电子元器件和软件的情况则截然不同，我们肯定需要制造商的支持，或许还需要一些研究机构的帮助。”

登记、时间线和型号

与 Diamond Aircraft 一样，万丰集团也依靠其在欧洲、亚洲和美洲的成熟布局和协同效应来发展 Volocopter。尤其是在适航审定方面，这是整个 eVTOL 行业的真正难点，该公司相信其丰富的经验能够带来益处。 “近年来，我们已在三大洲通过欧洲航空安全局（EASA）、中国民用航空局（CAAC）和加拿大运输部的适航审定并验证了 20 多架飞机，”鲍塞克说道。“最重要的是，我们将明确优先事项，不再像以前那样同时开展多个项目。双座VoloCity 就是其中之一。”EASA的适航审定进展顺利，我们希望能够在明年年底前完成认证。我们已确认拥有适航基础、符合性原型机（与计划生产型号相对应的试飞机），并且我们的适航计划也已获得批准。然而，在此之前，将VoloXPro（原名X-2）作为超轻型飞机完成研发工作已列为首要任务。因为这款飞机拥有最多的飞行小时数和飞行数据。它属于600公斤级超轻型飞机，目标市场是飞行员私人购买的飞机——顺便一提，就像钻石飞机公司的许多其他飞机一样。预计其初始售价约为50万欧元。对于一架超轻型飞机来说，这笔费用不低，但与同样是双座飞机的VoloCity相比则相差很大，VoloCity的预计售价为200万至300万欧元。除了私人用途外，该项目的另一个目的是为eVTOL飞行员提供价格低廉的入门级飞行培训，因为这两款18旋翼飞行器非常相似。我们与德国航空协会（ADAC）合作

hicle that corresponds to the planned production model), and our approval plans have been accepted."Before that, however, work on finalizing the VoloXPro (formerly X-2) as an ultralight aircraft has been put at the top of the agenda. Because this aircraft has the most flight hours and you have the most flight data. It fits into the 600 kg UL class and is aimed at the market of aircraft purchased privately by pilots – like many other Diamond Aircraft aircraft, by the way. The price is initially expected to be around 500,000 euros. A lot for an ultralight aircraft, but little compared to the VoloCity, which is also a two-seater, which is expected to cost two to three million euros. In addition to private use, the purpose is also to provide inexpensive entry-level flight training for eVTOL pilots, because the two 18-rotor devices are very similar. The "Medical First Responder" program, which was started with the ADAC, is also to be continued. For both aircraft, the XPro and the VoloCity, there are also ideal market opportunities in the LSA/MOSAIC eVTOL class, which will be launched in the USA next year. After all, the first LSA rules were also strongly based on the German UL guidelines, and they are active in the meetings in which the details of the rules are formulated."We can produce up to 100 Volos at the Bruchsal site. We have a composite and a battery production facility there," says Bausek. "But of course, in the event of bottlenecks or certain parts, we can also access production in the other plants. In addition, we can save on purchasing from suppliers. It makes a difference, for example, whether you buy a few hundred or a few thousand kilos of carbon fiber, resins and other things."Another synergy effect that will help the Volocopter on its way forward is the acceptance of Diamond Aircraft in the aviation world, with more than 6,000 aircraft delivered since 1981 and 1,500 employees worldwide. This should also help in the search for further investors. Once the approval by and production of XPro and the City has started, the next models will already be in the starting blocks. First, from 2028, the VoloUrban, an enlarged Vo-loCity multicopter with four seats, and then from 2030 the VoloRegio. But one thing is clear: The XPro, the entry-level model in the UL/MOSAIC class, which is also suitable as a basis for rapid further developments, will also remain in Volocopter's range.

Result

With the establishment and implementation of the test program for ultra-light eVTOLs, DULV and the manufacturer Volocopter have done pioneering work worldwide. Probably no other eVTOL has completed more flights in more countries around the world. The cooperation has proven that an entry into manned eVTOL aviation through a test program with lower entry hurdles than SC-VTOL can greatly accelerate development. And it helps to gain practical experience without limiting itself to theoretical assumptions and calculations. This is essential for the further development of the devices, the approval, operation and safety of all eVTOLs. It's a good thing that Volocopter has returned to its roots. We hope that the company will also stay on the ball in the long term, even ultralight. Another sign that gives me hope that in the future as a UL pilot I might be able to fly an eVTOL more often. Several other manufacturers of lightweight eVTOLs have also expressed interest in UL and MOSAIC eVTOLs. It would be strongly in the interests of Germany and Europe that there should be support from politicians for the continuation of the approval programme, especially in the field of electronics and software. After all, it repeatedly emphasizes how important it is to develop and maintain future technologies in Europe, especially in Germany.

With a successful DULV eVTOL testing program, we have a "unique selling point" that could be of interest to many manufacturers.

的“医疗急救”项目也将继续。对于XPro和VoloCity这两款飞机而言，明年即将在美国推出的LSA MOSAIC eVTOL级别也蕴藏着理想的市场机遇。毕竟，最初的LSA规则也很大程度上基于德国UL的指导方针，而UL也积极参与了LSA规则细节的会议。“我们在布鲁赫萨尔工厂最多可以生产100架Volo飞机。那里有复合材料和电池生产设施，”鲍塞克说道。“当然，如果出现瓶颈或某些零部件短缺，我们也可以调动其他工厂的生产。此外，我们还可以节省从供应商采购的成本。”例如，购买几百公斤还是几千公斤的碳纤维、树脂和其他材料，会产生截然不同的结果。“另一个有助于Volocopter发展的协同效应是Diamond Aircraft在航空界的认可度，该公司自1981年以来已交付超过6000架飞机，并在全球拥有1500名员工。这也有助于寻找更多投资者。一旦XPro和VoloCity获得认证并开始生产，后续机型也将紧锣密鼓地筹备中。首先是2028年推出的VoloUrban，这是一款四座的VoloCity多旋翼飞行器；然后是2030年推出的VoloRegion。但有一点很明确：作为UL/MOSAIC级别入门级机型，XPro也将成为Volocopter产品线中的一员，它同样适合作为快速后续研发的基础。

结论

随着超轻型eVTOL测试项目的建立和实施，DULV 和Volocopter 在全球范围内开展了开创性工作。可能没有任何其他 eVTOL 能在如此多的国家完成如此多的飞行。此次合作证明，通过准入门槛低于 SC-VTOL 的测试项目进入载人 eVTOL 航空领域，可以极大地加速发展。它有助于获得实践经验，而不局限于理论假设和计算。这对于进一步开发、所有 eVTOL 的认证、运营和安全至关重要。Volocopter 回归初心是一件好事。我们希望该公司能够长期保持这种势头，即使是在超轻型领域。这让我对未来作为一名超轻型飞行员能够更频繁地驾驶 eVTOL 充满希望。其他几家轻型 eVTOL 制造商也对 UL 和MOSAIC eVTOL 表示出了兴趣。

德国政界人士支持继续推进审批计划，尤其是在电子和软件领域，这对德国和欧洲至关重要。毕竟，该计划反复强调了在欧洲，尤其是在德国，开发和维护未来技术的重要性，而凭借成功的DULV eVTOL测试项目，德国将可能拥有一个“独特的卖点”，这可能会引起更多制造商的兴趣

AutoFlight Aviation Technology Launches the World's First «Integrated Sea - Air» Solution

AutoFlight Aviation Technology (hereinafter referred to as "AutoFlight") has launched the world's first "Integrated Sea - Air" solution. By integrating aviation and nautical technologies, it has created a deeply - integrated super complex of "eVTOL + water take - off and landing platform", extending the take - off and landing scenarios of eVTOL from land to water and unlocking infinite possibilities for the future.

Breaking Free from Geographical and Infrastructure Constraints

Seventy percent of the Earth's surface is covered by the ocean. With the scarcity of urban land resources, the construction of low - altitude travel infrastructure faces numerous difficulties. In islands and mountainous areas lacking airports or wharves, AutoFlight's water take - off and landing platform can enable the rapid implementation of infrastructure.

峰飞航空科技发布全球首个 海空一体 解决方案

峰飞航空科技（以下简称“峰飞“）发布全球首个“海空一体”解决方案，融合航空航海技术，打造“eVTOL+水上起降平台” 深度融合超级综合体，将eVTOL起降场景从陆地拓展到水上，重构立体交通出行模式，解锁未来无限可能。

突破地理与基建束缚

地球表面七成被海洋覆盖，城市陆地资源紧缺，低空出行基础设施建设困难。在缺乏机场或码头的海岛、山区，峰飞的水上起降平台，可实现基建的快速落地。

重塑航空航海交通模式

在跨城跨海交通中，以水上起降平台作为接驳节点，搭配 eVTOL 转乘，大幅节省时间，提升出行效率。

Remodeling the Aviation and Nautical Transportation Modes

In cross - city and cross - sea transportation, using the water take - off and landing platform as a connection node, combined with eVTOL transfers, can significantly save time and improve travel efficiency.

Opening up New Paths for the Marine Economy

Starting from the water take - off and landing platform, eVTOL can quickly transport supplies and personnel to offshore oil fields and wind farms for operations. In the high - end tourism sector, small eVTOLs can lead the way for exploration, and tourists can take large eVTOLs for sightseeing and island - hopping, creating a new 3D sightseeing experience.

WATER TAKE - OFF AND LANDING PLATFORM: AUTOFLIGHT'S NEW PRODUCT SUNSHIP138

As the world's first new - energy autonomous - driving water take - off and landing platform, Sunship138 can be adapted to various types of aircraft, such as eVTOLs and helicopters. Its flight deck innovatively integrates solar panels, combining power storage and charging functions. It can replenish an average of 200 kWh of energy per day. The vessel has an overall length of 41 m, a beam of 13 m, a draft of 1.7 m, and a displacement of 320T, maximum speed of 12 Kn and a range of up to 5000 Nm. With a rich three - deck layout, it is equipped with a salon, a reception room, an owner suite, a conference room, guest rooms, a kitchen, a dining room, an outdoor party area, etc., meeting the essential needs for offshore travel. The flying bridge and the main deck each have one take-off and landing pad, respectively compatible with the 75 kg-class small eVTOL (White Shark) and the 2-ton-class large eVTOL (CarryAll/Prosperity) from AutoFlight.

Sunship138 represents not only a pioneering feat in hardware integration but also an industry - first in software integration. Leveraging aviation and nautical AI large - scale models, information chain sharing, and independent - developed intelligent algorithms, it can achieve the automatic matching of the flight states of eVTOLs and the take - off and landing platform. Based on a multi - mode energy management system, it attains a perfect balance between power and range.

EVTOL MODELS: OPTIMALLY MATCHED WITH SUNSHIP138

* AutoFlight White Shark: The small take - off and landing pad on the flybridge deck of Sunship138 is specifically designed for AutoFlight's eVTOL, White Shark, enabling its vertical take - off and landing. White Shark has a wingspan of 6 meters, a maximum take - off weight of 75 kg, a cruising speed of 90 km/h, a range of 500 km, and a maximum flight duration of 6 hours. It also has the ability to observe and search over a wide range with super vision, can quickly search for targets over a long period of time, and can integrate and collaborate with Sunship138 and large eVTOLs to improve efficiency.
* AutoFlight CarryAll and Prosperity: The large take - off and landing pad on the main deck of Sunship138 provides a safe take - off and landing space for large aircraft, such as AutoFlight's CarryAll and Prosperity. CarryAll is the world's only ton - class eVTOL with TC/PC/AC. It has a maximum take - off weight of 2000 kg and a maximum commercial load of 400 kg. Prosperity is a 5 - seat eVTOL passenger aircraft, with a cruising speed of 200 km/h. It has demonstrated outstanding performance in cross - Yangtze River, Shenzhen - Zhuhai cross - sea and cross - city flights, as well as demonstration flights in Japan and the UAE.

RECONSTRUCT A NEW 3D LAND - SEA - AIR MOBILITY MODE

* Sea - Air Integration: Feel the Freedom

It offers a distinctive identity symbol for "pioneers in the high - end lifestyle circle", enabling easy switching between the "sea villa" and "aerial sightseeing" modes, broadens the horizons of life.

* The Eye of Exploration: Discovering the Unknown World

Equipped with the Discovery eVTOL i.e. White Shark, it provides an aerial view of over 200km, facilitating the exploration of unknown regions and offering a novel exploration perspective for adventure enthusiasts and scientific research teams.

* Sea - based Airport: Building a Land - Sea - Air Super Hub

Multiple Sunship138 can be combined to form a sea - based airport. Acting as a mobile island, it constructs a land - sea - air integrated super - transportation hub, reshaping the transportation landscape.

Autoflight founder and CEO Tian Yu with the Prosperity on the test facilities in Kunshan

峰飞创始人兼 CEO 田瑜在公司位于昆山的试飞场地

开拓海洋经济新赛道

eVTOL从水上起降平台出发，可快速运送物资与人员至海上油田、风力发电场作业。在高端旅游领域，小型 eVTOL 先导探险，游客乘坐大型 eVTOL 观光、登岛，打造立体观光新体验。

重量75公斤，巡航速度 90km/h，航程 500公里，最长航时6小时，且具备超视觉大范围观察搜寻能力，可长时间、

快速搜索目标物，能与Sunship138、大型eVTOL融合协同，提高效率。

* 峰飞CarryAll 与 Prosperity：Sunship138 主甲板的大型起降坪，为大型飞行器，如峰飞的CarryAll 和Prosperity提供安全起降空间。CarryAll是全球唯一“三证”齐全的吨级eVTOL，最大起飞重量2000公斤，最大商载400公斤。Prosperity 是5座eVTOL载人航空

* 水上起降平台：峰飞新品SUNSHIP138

作为全球首款新能源自动驾驶水上起降平台，Sunship138飞行甲板创新性融合太阳能板，集电储充于一体，日均补能200kWh。船身总长41米，宽13米，吃水1.7米，排水量320吨，最大航速12节，航程可达5000海里。三层甲 器，巡航速度 200km/h，在跨长江、深圳 – 珠海跨海跨

板布置丰富，配备沙龙、会客厅、主人房、会议室、客房、 城飞行以及日本、阿联酋的演示飞行中，均有卓越表现。

厨房、餐厅、娱乐区域等，满足远海出行的必备需求。飞桥和主甲板各设1个起降坪，分别适配峰飞75kg级小型eV

* 重构海陆空立体出行新模式

* 海空一体：感受自由

TOL（White Shark）和2吨级大型eVTOL（CarryAll/P为追求高品质生活的“圈层先锋”提供独特身份标识，轻rosperity）。

松实现“海上奢墅 + 空中观景”模式的自由切换，拓宽生活边界。

Sunship138 不仅是硬件集成的创举，软件集成更是行业首创。借助航空航海 AI 大模型、信息链共享及自研智能算法，可实现 eVTOL 与起降平台航态的自动匹配；基于多模式能量管理系统，达成动力与续航的完美平衡。

* eVTOL机型：与Sunship138最佳适配

* 探索之眼：发现未知世界

搭载Discovery eVTOL（如White Shark），获得200公里+的空中视野，助力探索未知区域，为探险爱好者与科研团队提供全新的探索视角。

* 峰飞White Shark：Sunship138 飞桥甲板配备的小型起降坪，专为峰飞的eVTOL——White Shark设计，供其垂直起降。White Shark 翼展 6 米，最大起飞

* 海上空港：构建海陆空超级枢纽

多艘海上起降平台可组合形成海上空港，作为移动岛屿，构建海陆空一体化的超级交通枢纽，重塑交通运输格局。

H2-Sling

Swiss fuel cell project: New propulsions from the University

The „Eidgenössische Technische Hochschue" (ETH) is not only the most recognized university of Switzerland but as well one of the leading technical universities in Europe. Since 2020 this is the university started programs to develop sustainable Aviation drive-trains. After finishing the 4 seater electric converted eSling the student team is now working on the H2-Sling, a fuel cell driven 2 seater airplane project. Willi Tacke, the publisher of "e-flight-Journal", spoke with Julian Hoffman, the team lead of the Hydrogen Program.

E-Flight-Journal: How many students work on the project at the moment and what subjects are they studying?
JULIAN HOFMANN: We are more than 50 as of today students of mechanical and electrical engineering- and many supporters.
E-Flight-Journal: If this is an university project, what is Cellsius?
JULIAN HOFMANN: Cellsius is an operation which we founded to maintain the aircraft flying even when the research project have been closed. Like for example the e-Sling which was basically finished with the test flights.
E-Flight-Journal: So the electric e-Sling is finished ?
JULIAN HOFMANN: Yes but with the student and supporter club Cellsius we keep it in the air and continue gaining data.
E-Flight-Journal: Is there just the university like professors and student or a larger group involved ?
JULIAN HOFMANN: The core are the students but we have several outside supporters and Sponsors who supplied material and funding. from motor manufacturers who build the Motor we designed with us to Fuel cell and battery suppliers like top aviation companies like Pilatus.

E-Sling

来自瑞士的氢燃料电池飞机项目

大学的电驱项目

瑞士联邦理工大学（ETH） 不仅是瑞士最受认可的大学，也是欧洲领先的技术大学之一。自 2020 年以来，该大学就开始可持续航空传动系统的计划。在完成 4 座电动改装的 eSling飞机项目后，学生团队现在正在开发 H2-Sling，这是一个氢燃料电池驱动的 2 座飞机项目。

《e-flight-Journal》的出版人 Willi Tacke 与这个氢能飞机计划团队负责人 Julian Hoffman 进行了交谈。

Big roll out on the home airfield of the ETH Zürich.
在苏黎世联邦理工学院所在的机场举行的隆重的发布仪式。

BThe fuel cell from Power cell ist installed instead of the passenger seats

Powercell 的燃料电池安装在乘客座椅位置。

Die Motor und Batteriekontrolle auf der rechten Seite.

右侧的发动机和电池控制装置。

E-Flight-Journal: Which components did u develop in the program?

JULIAN HOFMANN: Both aircraft are Metal kitplanes from the south African manufacturer Sling. We assembled this with the support of the manufacturer. We build the air-cooled Motor (with the company e&a) the inverter (both air cooled) and the liquid cooled battery pack. The performance is 104 Kw at 45 Kg weight. The battery has 44kw/h at a weight of 224 Kg which is positioned in the wing.

E-Flight-Journal: How many seats does the plane have?

JULIAN HOFMANN: It has four seats but due to the MTOW limit and the heavy battery we can only fly with 2 persons.

E-Flight-Journal: How many hours did you fly?

JULIAN HOFMANN: It's still flying and up to now has 25 hours logged.

E-Flight-Journal: The e-sling is finished since 2022, What happened then?

JULIAN HOFMANN: The next student group started with the H2-Sling, a High wing 4 seater. The two rear seats have been replaced by a fuel cell from the company Powercell which delivers 90kW power at a weight of 132kg and an efficiency of more than 50%.

The aircraft has a buffer battery with 6 kwH at 650 Voltage and a weight of 42 kilograms.

The gaseous hydrogen is stored in 2 pylons under the wing and give the aircraft a range of 400 Kilometers. The motor is the second generation which has nearly the same power but the weight could be reduced by 10 kilograms.

E-Flight-Journal: Did you have to modify the aircraft a lot?

JULIAN HOFMANN:The e-Sling was nearly unchanged from the Kit just the motor setup and the Batteries in the

E-Flight-Journal：目前有多少学生参与该项目，他们来自哪些专业?

朱利安·霍夫曼：截至目前，我们有 50 多名机械和电气工程专业的学生，还有许多支持者。

E-Flight-Journal：如果这是一个大学项目，那么 Cellius 是什么?

朱利安·霍夫曼：Cellius 是我们创立的一家公司，目的是即使在研究项目结束时也能保持飞机继续飞行。例如，e-Sling项目基本上已经完成了试飞。

E-Flight-Journal：那么电动 e-Sling 是结束了吗?

朱利安·霍夫曼：是的，但与学生和支持者俱乐部 Cellius 一起，我们能够让这架飞机继续飞行，并继续获取数据。

E-Flight-Journal：是只有教授和学生参与，还是有更多人参与其中?

朱利安·霍夫曼：核心是学生，但我们有几位外部支持者和赞助商提供了材料和资金。从制造我们共同设计的电机制造商到燃料电池和电池供应商，如皮拉图斯等顶级航空公司。

E-Flight-Journal：你们在该计划中开发了哪些组件?

朱利安·霍夫曼：这两架飞机都是来自南非制造商 Sling 的金属套材自制飞机。我们在制造商的支持下完成组装。我们制造风冷电机（与e&a公司合作）、逆变器（均为风冷）和液冷电池组。电机重量为45公斤，104千瓦。电池为 44kw/h，重量为 224公斤，装在机翼里。

E-Flight-Journal：飞机有多少个座位?

朱利安·霍夫曼：它本来有四个座位，但由于起飞重量限制和沉重的电池，改装后只能乘坐 2 人。

E-Flight-Journal：飞行了多少小时?

朱利安·霍夫曼：它仍在飞行，到目前为止已经记录了 25 小时。

E-Flight-Journal：eSling飞机自 2022 年起就结束了，然后发生了什么?

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wing required some changes . With the H2-Sling it is different cowling with the cooling for the Fuel cell was largely modified and the Fuselage had to be modified for the fuel cell behind the seats, Then there are the Pylon tanks at the wing and finally we gave the plane 35 centimeters extra wingspan on each side.

E-Flight-Journal: How far is the project?

JULIAN HOFMANN: The maiden Flight of the H2 should happen around spring 2026 then later the year we want to fly from Zurich passing at our sponsor Pilatus in the airport of Buochs and then cross the Alps over the St Gotthard pass.

E-Flight-Journal: So what will happen to the plane ? Will somebody produce them?

JULIAN HOFMANN: As the university research is finished we stop working on them. But we will keep them flying in the Cellsius club – But no at the moment there is no production planned but we are open for offers.

E-Flight-Journal: Juilan Thanks fort the interview.

朱利安·霍夫曼：学生小组开始 H2-Sling项目，这是一个4座上单翼飞机，两个后排座椅已被 Powercell 公司的燃料电池取代，该电池以 132 公斤的重量和超过 50% 的效率提供 90kW 的功率。该飞机有一个6度的辅助电池，电压为 650，重量为 42 公斤。气态氢气储存在机翼下方的 2 个挂架中，飞机的航程达到 400 公里。电机是第二代，功率几乎相同，但重量可以减轻10公斤。

E-Flight-Journal：你们需要对飞机进行大量改装吗?

朱利安·霍夫曼：e-Sling 与原装套材几乎没有变化，只是电机安装和机翼中的电池部分需要进行一些更改。对于 H2-Sling，它有不同的整流罩，针对燃料电池的冷却进行了很大修改，机身必须针对座椅后面的燃料电池进行修改，然后是机翼上的挂架，储氢罐，最后我们给飞机每侧增加了 35 厘米的翼展。

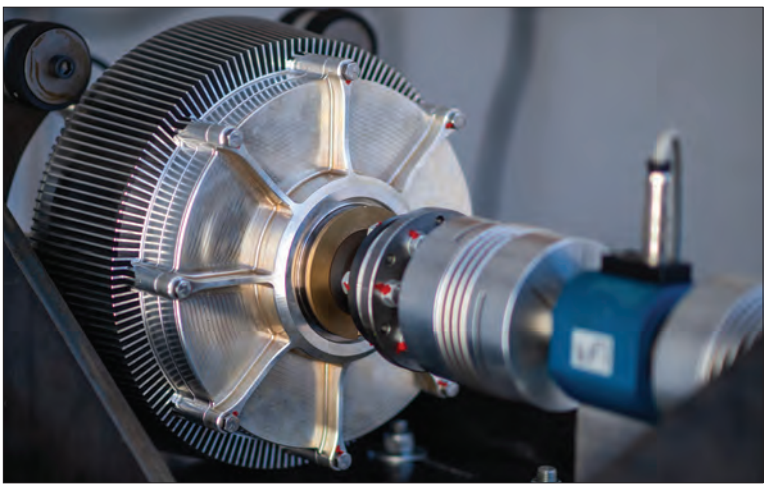
E-Flight-Journal：项目进展多远?

朱利安·霍夫曼：H2 的首飞应该在 2026 年春季左右进行，然后是当年晚些时候，我们希望从苏黎世起飞，经过我们的赞助商皮拉图斯公司所在的布奥克斯机场，然后越过圣哥达山口穿越阿尔卑斯山。

E-Flight-Journal：那么有什么计划? 计划量产吗?

朱利安·霍夫曼：随着大学研究项目的完成，项目就终止了。但我们会让这架飞机在 Cellius 俱乐部继续飞——目前没有量产计划，但我们对量产合作持开放态度。

E-Flight-Journal：感谢采访。



The e-Drive of the has 101 kW and H2-Sling and the weight is 32 Kg.

H2-Sling的该电驱的功率为101千瓦，重量为32公斤。

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e-Flight-Forum Program

2025国际电动航空（昆山）论坛议程				
e-Flight-Forum Program				
11月23日				
8:30-9:05	开幕式 opening ceremony	中方主持人：高远洋 北京航空航天大学通用航空产业研究中心主任 国际航空航天协会协调理事会AAM咨询组委员 Chinese host: Gao Yuanyang, Director of General Aviation Industry Research Center, Beijing University of Aeronautics and Astronautics; Member of the AAM Advisory Group of the IAA Coordination Council 外方主持人：Willi Tacke 德国飞页公司总裁 Foreign host: Willi Tacke, CEO, Flying Pages GmbH		
23.11.2025	23. Nov 25			
上午 Morning				
议题一： Subject 1:	低空经济、FAA轻型运动类新规（MOSAIC）与政策制订 Low Altitude Economy, the MOSAIC rule of FAA and policymaking			
下午 afternoon				
议题三： Subject 3:	电动固定翼飞机动态与展望 The update and prospective of electric fixed wing airplane			
23.11.2025				
议题一：低空经济、FAA轻型运动类新规（MOSAIC）与政策制订 Low Altitude Economy, the MOSAIC rule of FAA and policymaking				
上午 Morning				
9:10-9:25	中国航空学会飞行器适航分会	主任 director	（徐超群 Xu Chaoqun）	无人机适航管理简介
9:27-9:42	Light Aircraft Manufacturer’s Association (LAMA)	主席 President	Scott Severen	MOSAIC新规及全球影响 MOSAIC Rule and worldwide results
09:44-09:59	中国民航华东地区管理局 Eastern China regional office of CAAC	原二级巡视员 Level II Bureau Rank Official	钱惠德 Qian Huide	载人动力提升航空器技术需求一些认识 Some Understandings of the Technical Requirements for Manned Powered Aircraft
10:01-10:16	法国AOPA协会 AOPA France	主席 Chairman	Emmanuel Davidson	
10:18-10:33	中国民用航空适航审定中心 Airworthiness Certification Center of CAAC	副处长 deputy director	侯小宇 Hou Xiaoyu	国产共性技术研究及芯片认证方案 Research on Domestic Common Technologies and Chip Certification Solutions
10:35-11:00	英国Cranfield大学 Cranfield University	教授 Professor	吕灵亥 Lu Linghai	通过模拟过程进行适航认证 Progress on Certification by Simulation
下午 afternoon				
议题二：电动垂直起降航空器动态与展望 The update and prospective of eVTOL				
13:00-13:15	上海峰飞航空科技有限公司 Autoflight	创始人兼CEO founder and CEO	田瑜 Tian Yu	盛世龙载人eVTOL与凯瑞鸥物流型号的并行研发 The integrated developement of the manned and unmaned eVTOLs Prosperity (Passenger)and "Carry All" Cargo
13:17-13:32	美国Pivotal公司	市场总监 CEO	Ken Karkling -（在线发言，online）	
13:34-13:49	四川沃飞长空科技发展有限公司 Aerofugia	CEO兼首席科学家	郭亮 Guo Liang	沃飞长空载客运输eVTOL的进展与挑战 Progress and Challenges of Aerofugia’s Passenger-carrying eVTOL
13:51-14:06	奥地利Diamond Aircraft Group / Volocopter	CTO	（在线发言）/ 李雁北 David Bausek/Li Yanbei	eVTOL and eAircraft design at Volocopter and Diamond Aircraft
14:08-14:23	追梦空间 Dreamfly	总裁 CEO	蔡文宽 Cai Wenkuan	混动倾转，让世界触手可及！ Hybrid tilt-rotor eVTOL makes the world
14:25-14:40	英国Skyfly公司	创始人兼CEO founder and CEO	Michael Thompson	Mosaic EV kade in Europe with experimental permit in
14:42-14:57	广汽高域 Govy Tech of GAC	副总裁 VP	郑家响 Zheng Jiaxiang	构建一键式、放心的智慧低空出行生态 Building an intelligent LAE ecosystem
14：59-15:14	美国LamVec公司	CEO	顾泓远 Gu Hongyuan	Part 103 eVTOL
议题三：电动固定翼飞机动态与展望 The update and prospective of electric fixed wing airplane				
15:36-15：51	中国商用飞机有限责任公司北京民用飞机技术研究中心 COMAC Beijing Research Center	预研总师 CTO	杨志刚 Yang Zhigang	
15：53-16：08	瑞士Smartflyer飞机公司	创始人兼CEO founder and CEO	Rolf Stuber	4 seat eaircraft from switzerland
16:10-16:25	辽宁通用航空研究院 Liaoning General Aviation Academy	院长 president	张庆新 Zhang Qingxin	电动航空的机遇、挑战与思考 Reflections about electric aviation
16:27-16:42	德国MD Aircraft飞机公司	技术顾问 technical consultant	Karl Käser	9 seat electric commuter aircraft

2025国际电动航空（昆山）论坛议程

16：44-16;59	中国飞机强度研究所 China Aircraft Strength Research Institute	总工 chief engineer	刘小川 Liu Xiaochuan	eVTOL研制中的强度关键问题 Key Strength Issues in eVTOL Development
17：01-17:16	挪威Elfly飞机公司	CEO	Eric Lithun	9 seat electric seaplane
19:30	电动航空之夜 Electric Aviation Gala			
24.11.2025 上午				
议题四：混动电驱、氢能与电池 Hybrid electric, Hydrogen and Battery				
8:30-8:45	四川鸿鹏航空航天装备智能制造有限公司 Sichuan Falcon Aerospace	高级顾问，混合动力系统总师 chief engineer of the hybrid system	郑伟伟 Zhen Weiwei	eVTOL构型与任务类型对驱动能源的需求——涡轮混动系统 eVTOL Configurations and Mission Types
8:47-9:02	苏黎世联邦理工学院 ETH Zurich	项目主管 Project Manager	Julian Hofman	Fuel cell aircraft developement as a student project
9:04-9:19	安徽盟维新能源科技有限公司Montavista	创始人 founder	张跃钢 Zhang Yuegang	高能高功率垂直起落航空器动力电池 High Power and High Energy Density Batteries for Drones and eVTOL
9:21-9:36	德国RED-Aircraft航发公司	市场总监 Diretor of Sales and Market Development	Christian Mundiggler	Developement of modern Diesel / Jetfuel Hybrid systems
9:38-9:53	清华大学 Tsinghua University	教授 Professor	钱煜平 Qian Yuping	地面效应对飞行汽车涵道风扇推进系统流动稳定性影响 Ground Effect on the Flow Stability of the Ducted-Fan
议题五：供应链与基础设施建设 Supply chain and Infrastructure				
10:15-10:30	中国民用航空局运行监控中心 The Operation Monitoring Center of CAAC	原副主任 教授级高工 Former deputy director, Professor-level senior engineer	田振才 Tian Zhencai	低空智能运输系统——低空经济的核心 Low-Altitude Intelligent Transportation System — The Core of the Low-Altitude Economy
10:32—10:47	轻型飞机制造商协会 Light Aircraft Manufacturer’s Association (LAMA)	运营副主席 VP of operation	Margaret Severen	Operations of LSA Aircraft in USA
10:49-11:04	北斗伏羲 iwhere	高级副总裁 SVP	许卫岳 Xu Weiyue	以北斗网格码构建安全高效的低空智联网 Building a safe and efficient low-altitude intelligent network using Beidou grid codes
11:06-11:21	澳洲Electra.Aero公司	联合创始人兼CEO co-founder and CEO	Josh Portlock	Charging systems for electrical aircraft
11:23-11:38	龙兴（杭州）航电电子有限公司 Loongrise Avionics	副总裁 VP	曾招鹏 Zeng Zhaopeng	聚焦航电自主可控，共筑低空产业新生态 Focusing on independent and controllable avionics, jointly building a new ecosystem for the low-altitude industry.
11:40-11：55	德国laminar deice公司	创始人兼CEO founder and CEO	Markus Villinger	**deicing systems for electric aircraft**
11:57-12:12	钧联电子 HefeiJ Auto. Electronics Co.,Ltd	适航构型总监 Director Configuration	温文才 Wen Wencai	eVTOL高压SiC电动发动机系统研制关键能力及进展 Progress high-Volt. E-Propulsion SyseVTOL
议题六：人工智能与航空软件开发与应用 / Development and application of AI and Software in Aviation				
13:30-13:45	粤港澳大湾区数字经济研究院(IDEA)	院长 President	李世鹏 Li Shipeng	智慧低空进化论 Evolution of Intelligent Low-Altitude
13:47-14:02	高德软件 AMAP navigation	高德云图交通&泛政府总经理	李新辉 Li Xinhui	空间智能·AI与低空 Spatial Intelligence: AI and Low Altitude
14:04-14:19	德国Alphafrog公司	创始人兼CEO founder and CEO	Marko Hirsch	Economic AI based instrumentation for Mosaik aircraft
14:21-14:36	边界智控 Boundary	自驾与导航部负责人 Head of Self-Driving and Navigation Department	钱劭晨 Qian Shaochen	AI赋能低空经济：边界智控的技术积累与突破 AI Empowering the Low-Altitude Economy: Technological Accumulation and Breakthroughs of Boundary.AI
14:38-14:53	上海柘飞航空科技有限公司 Shanghai Zhefei Aerospace Technologies	董事长 president	陈开鸣 Chen Kaiming	人工智能工程应用，柘飞的实践 AI for Engineering: Zephyr’s Approach

Attention Additional parallel sessions on: LAE use cases & Investment in AAM and LAE on the 24.11.

24.11.2025
上午 Morning
分论坛一：低空经济应用场景研讨 Use cases of Low-Altitude Economy
下午 afternoon
分论坛二：低空经济产业链投融资项目对接 **Investment and Financing Matchmaking for Projects in the Low-Altitude Economy Industrial Chain**

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