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Flylong

Hydrogen Propulsion for Green Aviation

Mag. Arch Oliver Irschitz, Projectmanager
Flylong Consortium
Vienna, 10.11.2025

Brief description of the consortium partners

AVL-List GmbH, Graz
Global Technology Provider, LE
Main contribution:
Fuel Cell Systems

Infineon Technologies Austria AG,
Villach, Semiconductor/Halbleiter, LE
Main contribution:
Provide information of electrical/ electronical components and systems

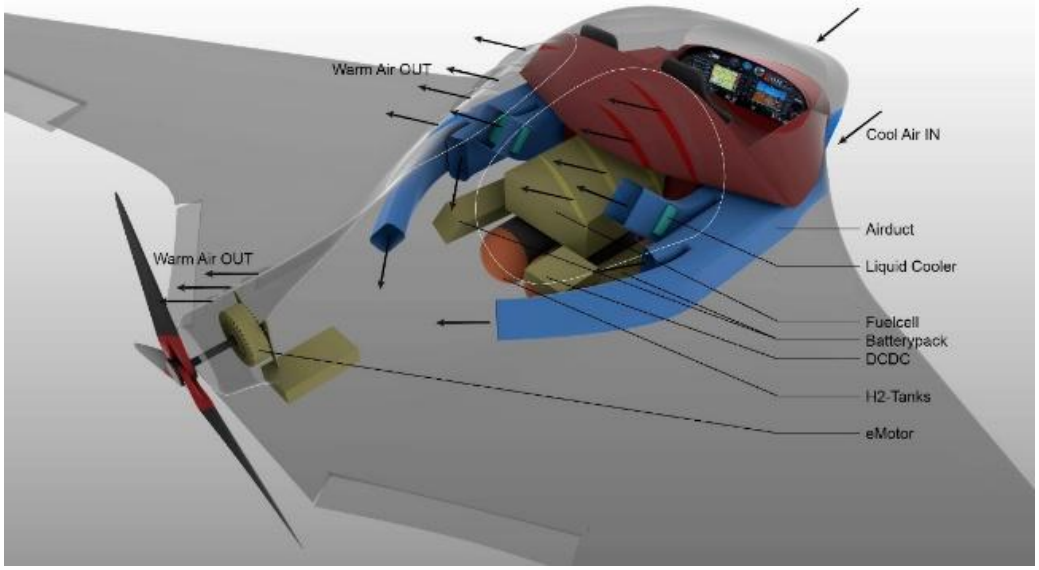
Meder & Partner KG, Kufstein Architects,
Aircraft Development, SME
Main contribution:
Airborn Demonstrator & Design Studie

Aim of the project / Background of the project

- Background: the experimental flight models of Deep Blue Aviation
- Aim: feasibility of a small blended wing aircraft with a fuel cell powertrain

Project results

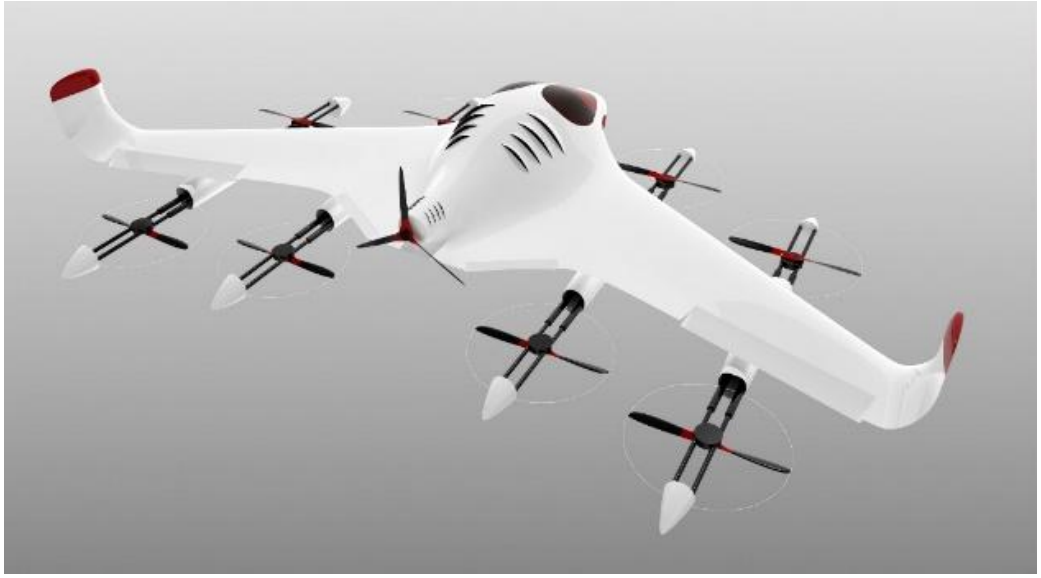
Blended Wing MX22 eCTOL Concept



wingspan	**11 m**
lenght	5,5 m
height	1,73 m
wing area	14,6 m2
MTOW	985 kg
empty weight	800 kg
payload	185 kg
max. power peak	100 kW
propeller diameter	1,8 m
seats	**2**

Project results

Blended Wing MX18 eVTOL Concept

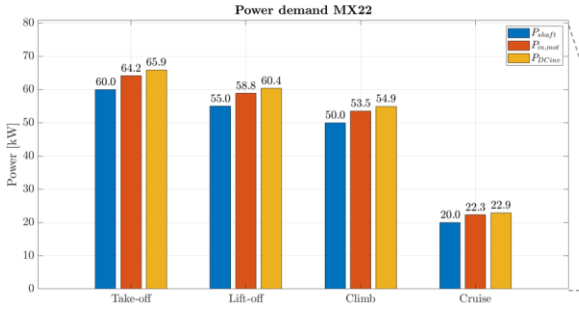


wingspan	**11 m**
lenght	6,4 m
height	2 m
wing area	17,86 m2
MTOW	1409 kg
empty weight	1224 kg
max. power peak	410 kW
propeller diameter	1,8 m
seats	**1**

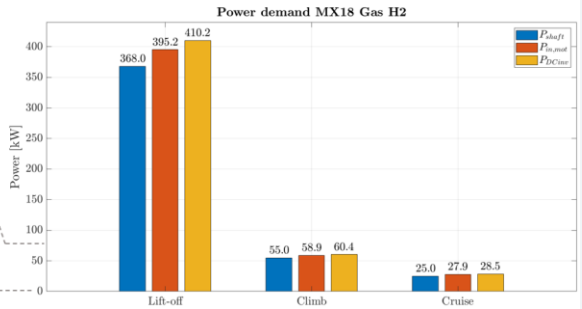
Project results

Power and Performance Comparison MX22 vs. MX18

Silhouette MX22 (eCTOL)



Silhouette MX18 (eVTOL)



23kW for Cruise Flight
66kW for Take-off (~x2.9 of Cruise)

Performance	W / kg	kg / kW
Take-off	71	14
Cruise	24	41

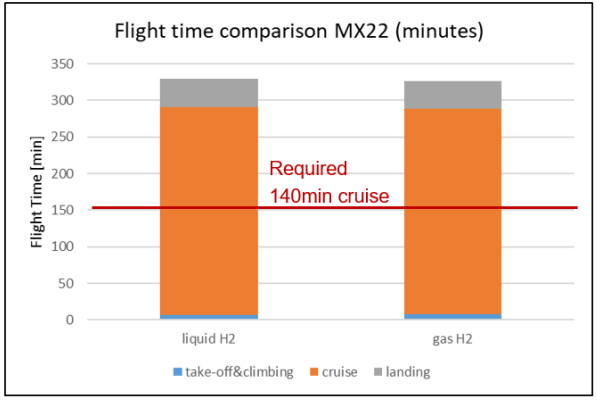
28.5kW for Cruise Flight
410kW for Take-off (~x14 of Cruise!)

Performance	W / kg	kg / kW
Take-off	297	3.4
Cruise	21	47

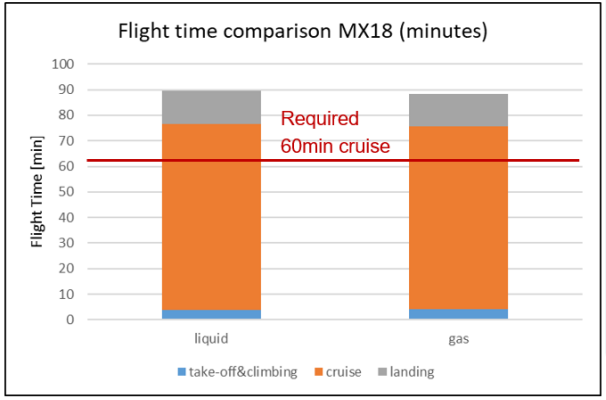
Project results

Energy and Performance Comparison MX22 vs. MX18

Silhouette MX22 (eCTOL)



Silhouette MX18 (eVTOL)



	Required	H2 Liquid	H2 Gas
Cruise Time	140 min	284 min	280 min
Speed	250 km/h	217 km/h	224 km/h
Distance	588 km	1029 km	1049 km

	Required	H2 Liquid	H2 Gas
Cruise Time	60 min	72 min	71 min
Speed	180 km/h	237 km/h	240 km/h
Distance	180 km	287 km	286 km

Project results

Energy Performance Comparison to electric Cars

Silhouette MX22 (eCTOL)

Only Cruise Flight

Cruise	Required	H2 Liquid	H2 Gas
Cruise Time	140 min	284 min	280 min
Distance	588 km	1029 km	1049 km
Energy requ.	53.4 kWh	108.4 kWh	106.9 kWh
Performance	**9.0 kWh/100km**	**10.5 kWh/100km**	**10.2 kWh/100km**

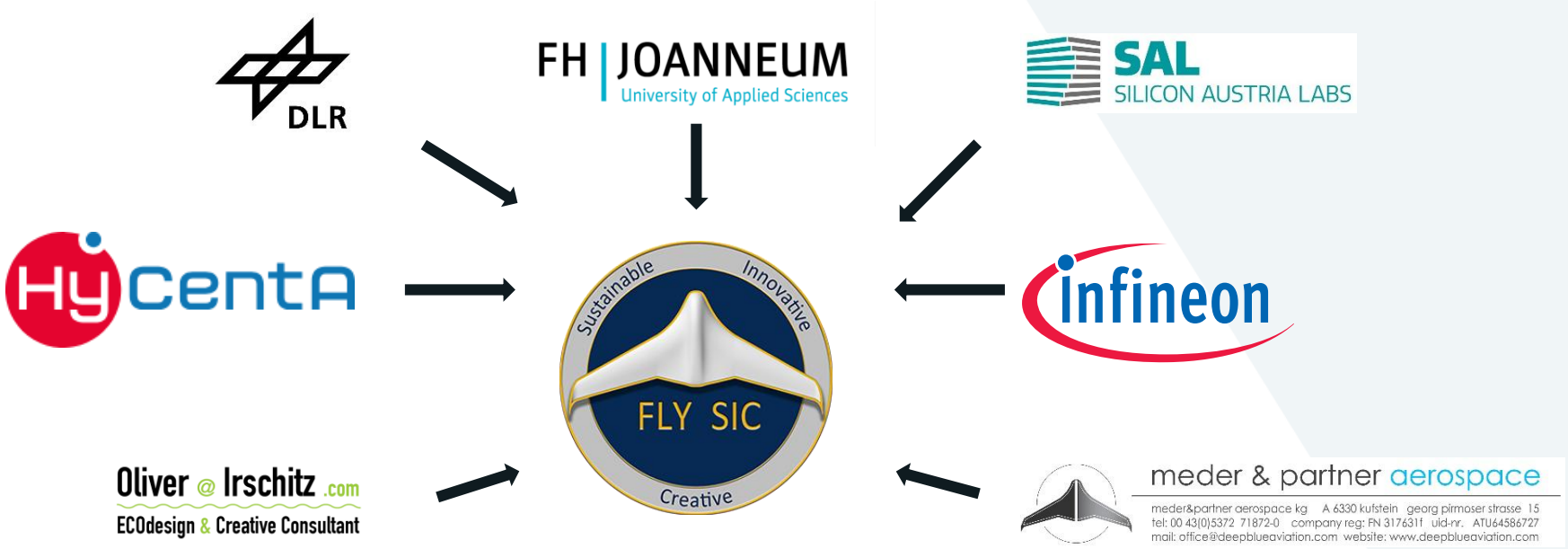
Overall Flight incl. Lift-Off, Climb and Descend

Overall	Required	H2 Liquid	H2 Gas
Flight Time	140 min	330 min	326 min
Distance	640 km	1117 km	1140 km
Energy requ.	60.0 kWh	119.5 kWh	119.2 kWh
Performance	**9.4 kWh/100km**	**10.7 kWh/100km**	**10.5 kWh/100km**

Automotive examples for comparison
(Datasheet values, real values might be worse)

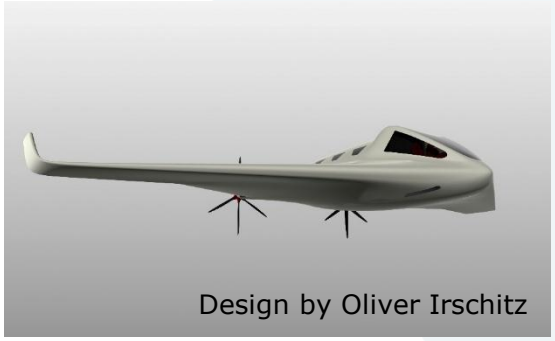
Model	Battery	Range (EPA)	Performance
BMW iX M60	111.5 kWh	463 km	**24.1 kWh/100km**
BMW i3	42.0 kWh	246 km	**17.1 kWh/100km**
Hyundai IONIC 5s	77.4 kWh	507 km	**15.2 kWh/100km**
Tesla S60 RWD	62.0 kWh	345 km	**17.9 kWh/100km**
KIA EV6 Air	87.1 kWh	528 km	**16.5 kWh/100km**
AUDI e-tron 55 quattro	86.5 kWh	365 km	**23.7 kWh/100km**
Nissan Leaf	39.0 kWh	270 km	**14.4 kWh/100km**
Renault Megane E-Tech	60.0 kWh	370 km (90km/h)	**16.2 kWh/100km**

Utilization of the project



Further steps/(potential) follow-up projects

- Basic Development of the MX-24, a hydroelectric plane for 8 passengers (CS23)
- Funded by FFG Takeoff!



Thank you for your attention!

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