



DIEHL
Aerospace

Joint Cleansky-FCH Workshop on FCH technologies in aeronautics

Lampoldshausen, 15./16. Sep. 2015

DACAPO®



The energy-autonomous cabin

Ronny A. Knepple
Head of Energy Systems

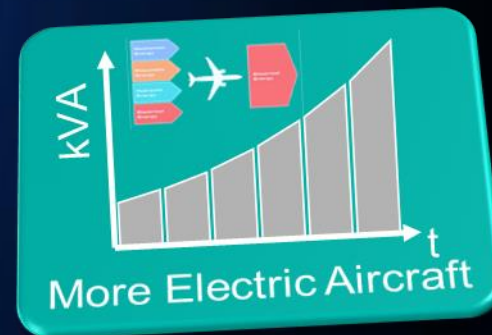
A Joint Diehl Thales Company

www.diehl-aerospace.com

Is there one solution
for everything?



Challenges of civil aviation



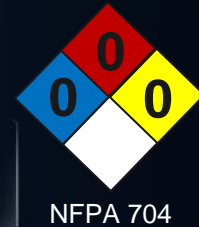
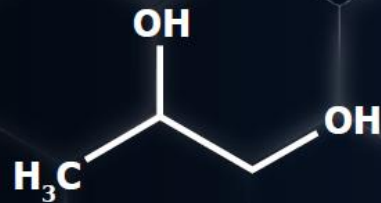
Diehl's Vision

for **green energy** on board



Safe Fuel

Propylene Glycol Water Mixture $C_3H_8O_2$



green production | non-explosive | non-inflammable | non-toxic | less reactive | odorless | biodegradable



Bricks of a visionary concept

The roadmap to an energy-autonomous cabin

- **Power Cell** trolley
- **MAGIC®** galley
- **DACAPO®** cabin



1



3



2





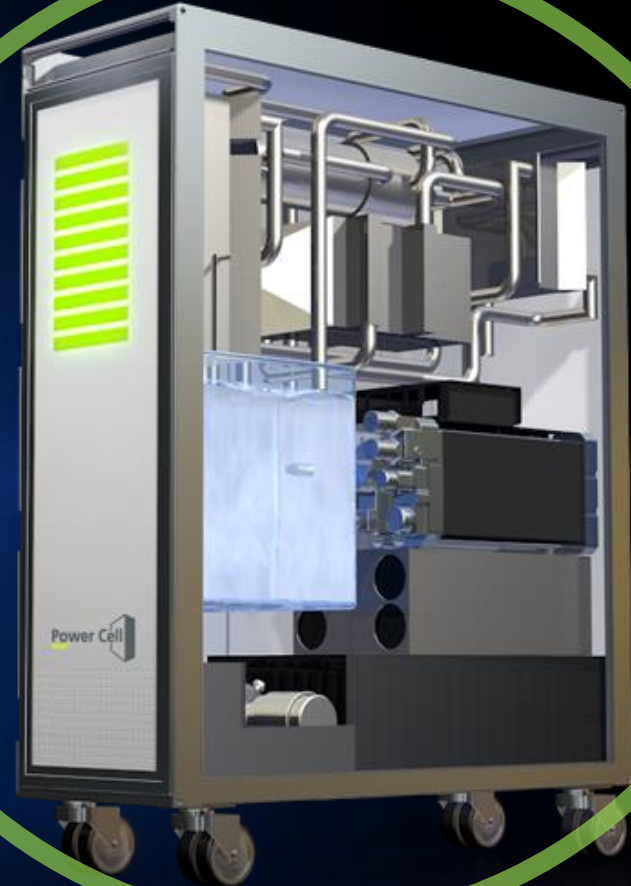
Main components:

- **worldwide 1st PGW fuel processor**
- **highly integrated PEM fuel cell**
- **safe Li-Ion battery technology**

PGW ...propylene glycol water mixture



... a clever packaged hybrid system



MAGIC®

Modular Autonomous Galley with Integrated Power Cell

Galleys are main consumers of electrical energy, up to

50%

Simple operation

- plug in Power Cell
- galley is powered
- exchange after flight

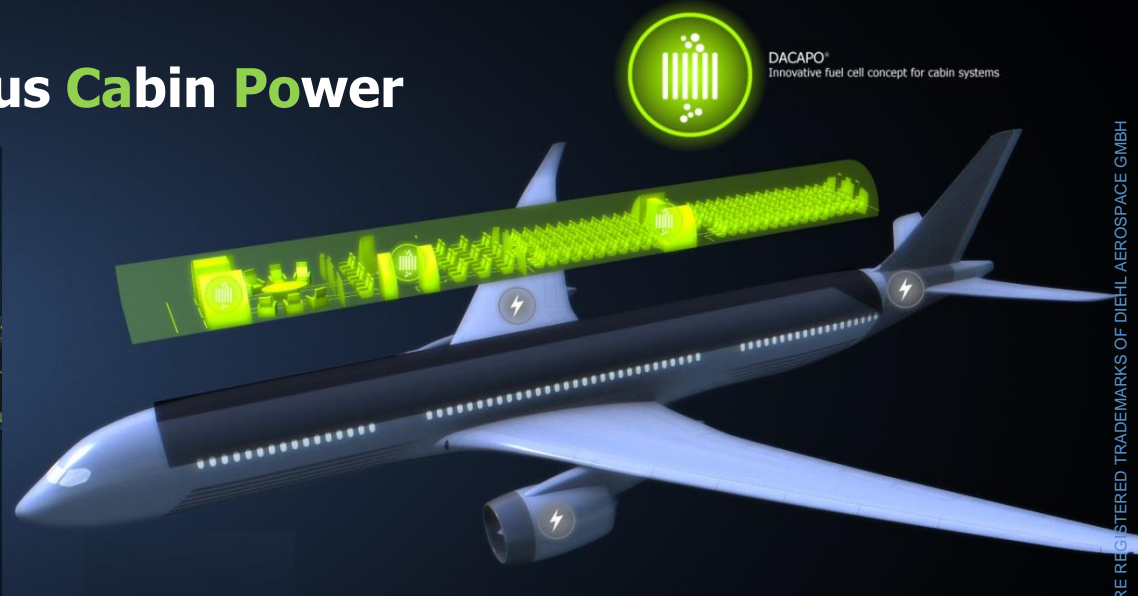


A retrofittable solution, using a well-known supply-chain



DACAPO®

Distributed Autonomous Cabin Power



The DACAPO® power grid

- separates **essential** flight systems and **non-essential** cabin systems
- is based on energy-autonomous MAGIC® galleys with Power Cells
- relieves the existing on-board power system significantly
- supplies non-essential electrical cabin consumers

Better FAL productivity
by reduced installation effort



Emission free operation
by renewable and safe fuel



Airframer Benefits

Faster reconfiguration
by increased cabin flexibility



Reduced weight
by less wiring
and kerosene saving

Airliner Benefits

**More possible
cabin comfort functions**
by more available energy



Flying more “green”
be member of a
responsible society



Passenger Benefits



DACAPO® – The energy-autonomous cabin

Conclusion (Trailer)



Thank you

AVIATION



AWARD 2014

FINALIST



**CRYSTAL
CABIN**
AWARD®

WINNER 2014



DIEHL
Aerospace

Contact

Ronny A. Knepple
Head of Energy Systems

Diehl Aerospace GmbH
Alte Nussdorfer Str. 23
88662 Ueberlingen
Phone +49 7551 891 0
Fax +49 7551 891 4001
www.diehl.com/aerosystems



DIEHL
Aerospace

Die Weitergabe sowie Vervielfältigung dieses Dokuments, Verwertung und Mitteilung seines Inhalts sind verboten, soweit dies nicht ausdrücklich gestattet ist. Zuwiderhandlungen verpflichten zu Schadenersatz. Alle Rechte für den Fall der Patent-, Gebrauchsmuster- oder Geschmacksmustereintragung vorbehalten.

MAGIC® (Modular Autonomous Galley with Integrated power Cell) und DACAPO® (Distributed Autonomous Cabin Power) sind registrierte Warenzeichen der Diehl Aerospace GmbH.

The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization is prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design.

MAGIC® (Modular Autonomous Galley with Integrated power Cell) and DACAPO® (Distributed Autonomous Cabin Power) are registered trademarks of Diehl Aerospace GmbH.