

# Specialized Systems for Extreme Environments

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David Zuniga, General Manager, Danish Aerospace Company - North America, Inc.



# Danish Aerospace Company – North America, Inc. Vision and Mission

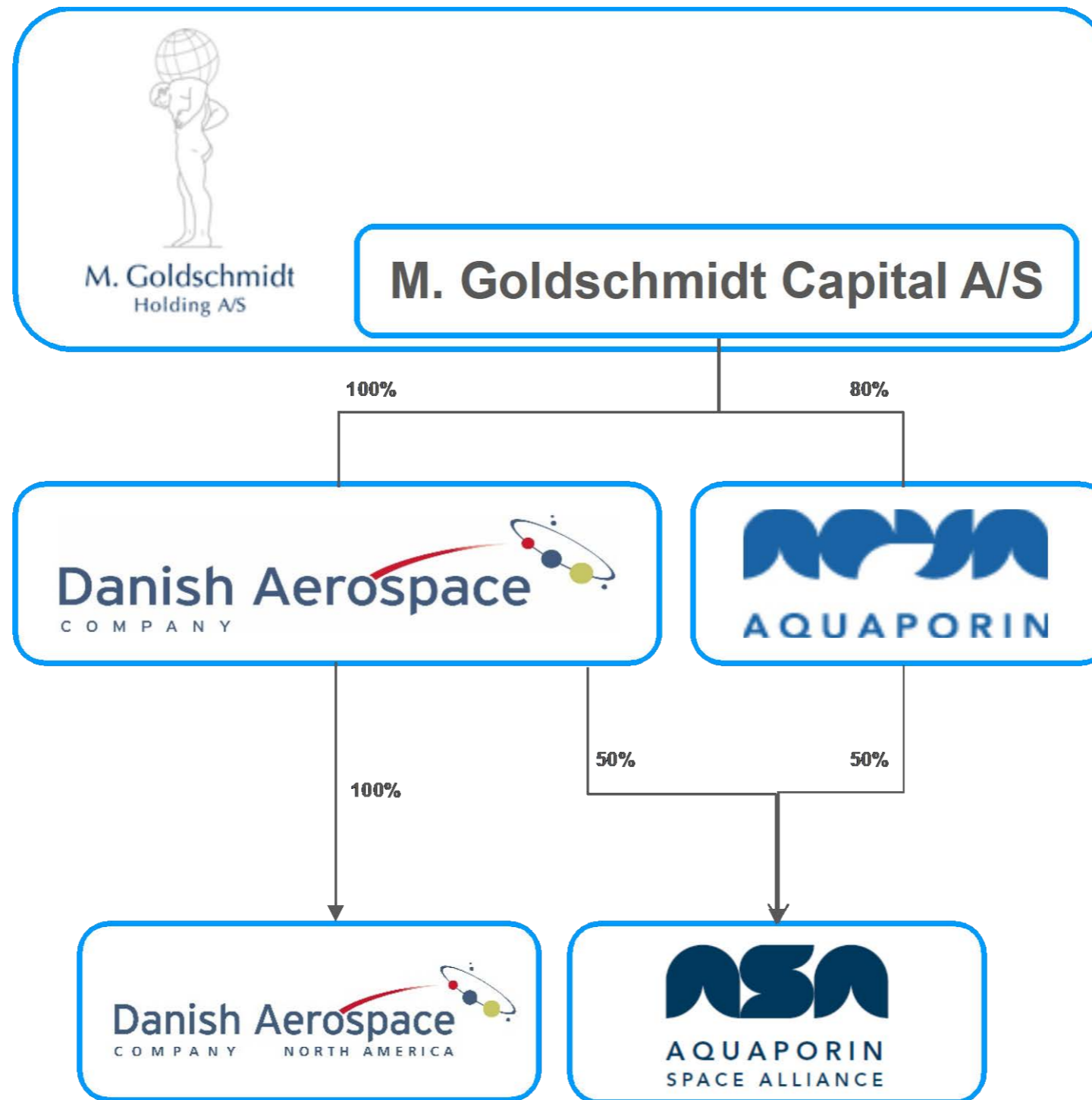
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## Our Vision

*Support and expand humanity's understanding of human physiology, physical conditioning, and life support systems to enable continued exploration of our planet, and beyond while improving the quality of life on Earth.*

## Mission

*Develop innovative technologies that support the presence of humans in space and that have applications in extreme and inaccessible environments on Earth, and*



# Company Structure

Aerospace, and Water Under One Roof

# Business Verticals

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- **Wearables**: Wearable technology to monitor human health and performance
- **Water Processing**: Forward osmosis water processing technology from Aquaporin for use in extreme environments such as DoD, space, and stressed ground environments
- **Human Performance**: Technology that enhances human performance, or counteracts degraded human performance in extreme environments
- **Exploratory Market (Satellite Services)**: Technology that contributes to knowledge on human health, and performance on the planet via earth observation data, and data communication infrastructure (i.e. RF, or optical communications to wearables in remote areas) between people and machines

# Wearables for Measuring Human Health and Performance

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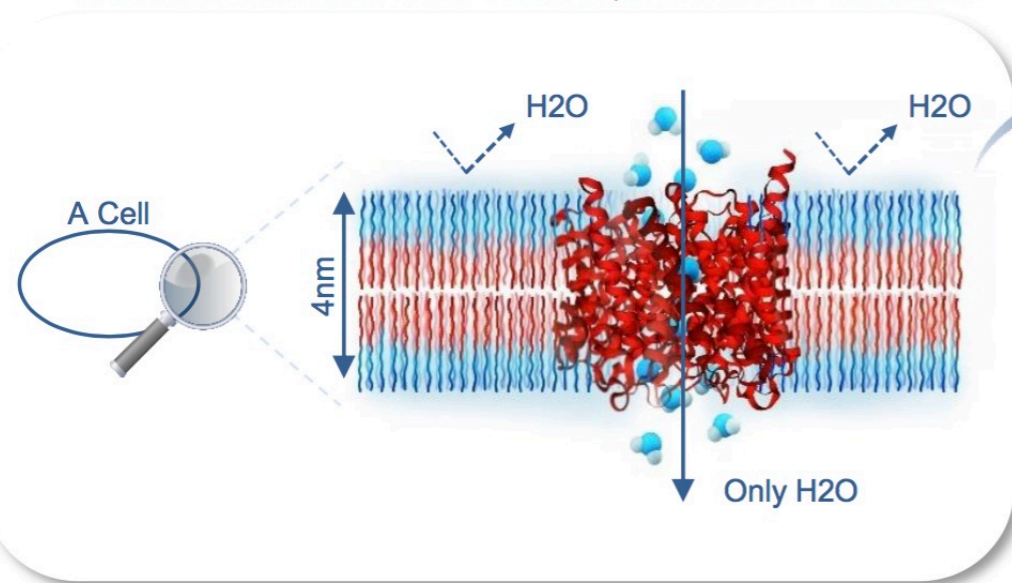
- Physiological parameters
  - SpO2 (Peripheral Oxygen Saturation) over long durations
  - Heart Rate
  - Skin Temperature
  - Activity Levels: Sleep, exercise
- Ambient conditions
  - Weather (Ambient Temperature)
  - Sunlight (Psychological)
  - Access to RF data from surroundings (IoT health systems)



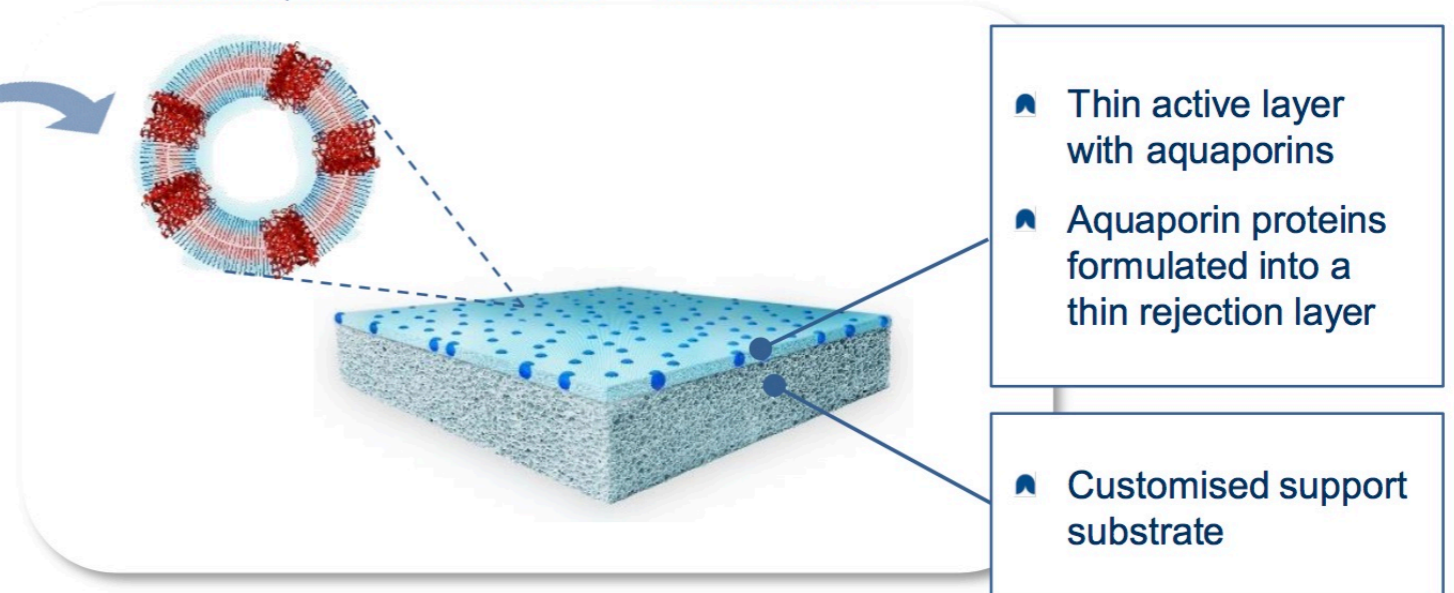
# Water Processing Forward Osmosis Technology

- Aquaporin water channels are **nature's water filters** and can be found in all cells – from bacteria to plants and humans
- Aquaporin water channels **only allow water molecules (H<sub>2</sub>O)** to pass, while **blocking all other impurities**, regardless of their molecular weight

THE NATURE BEHIND THE AQUAPORIN PROTEIN

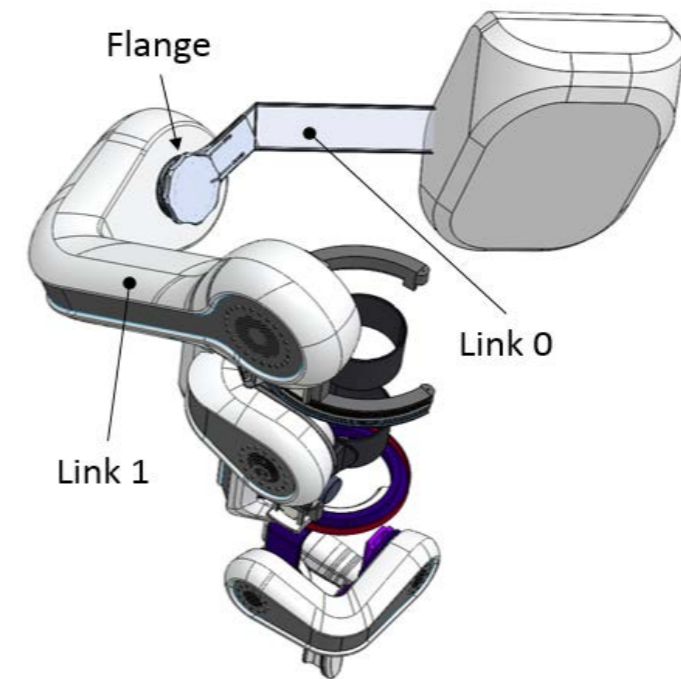


THE AQUAPORIN INSIDE™ MEMBRANE





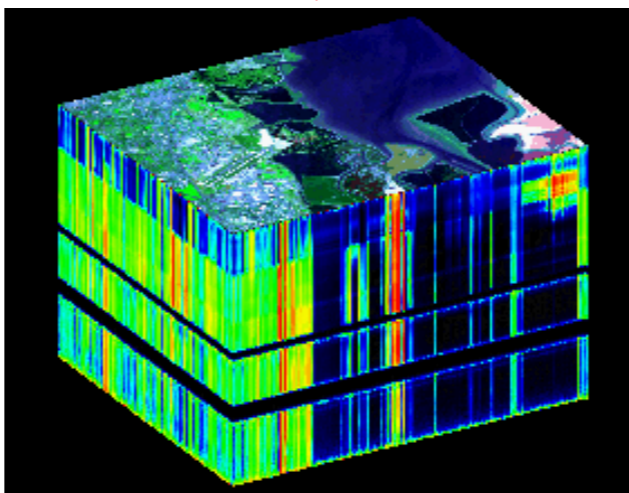
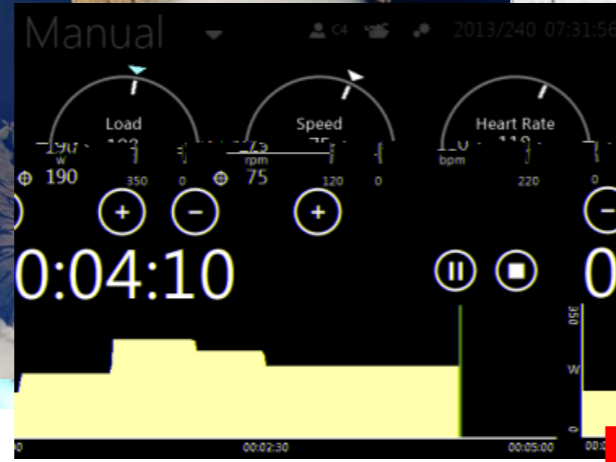
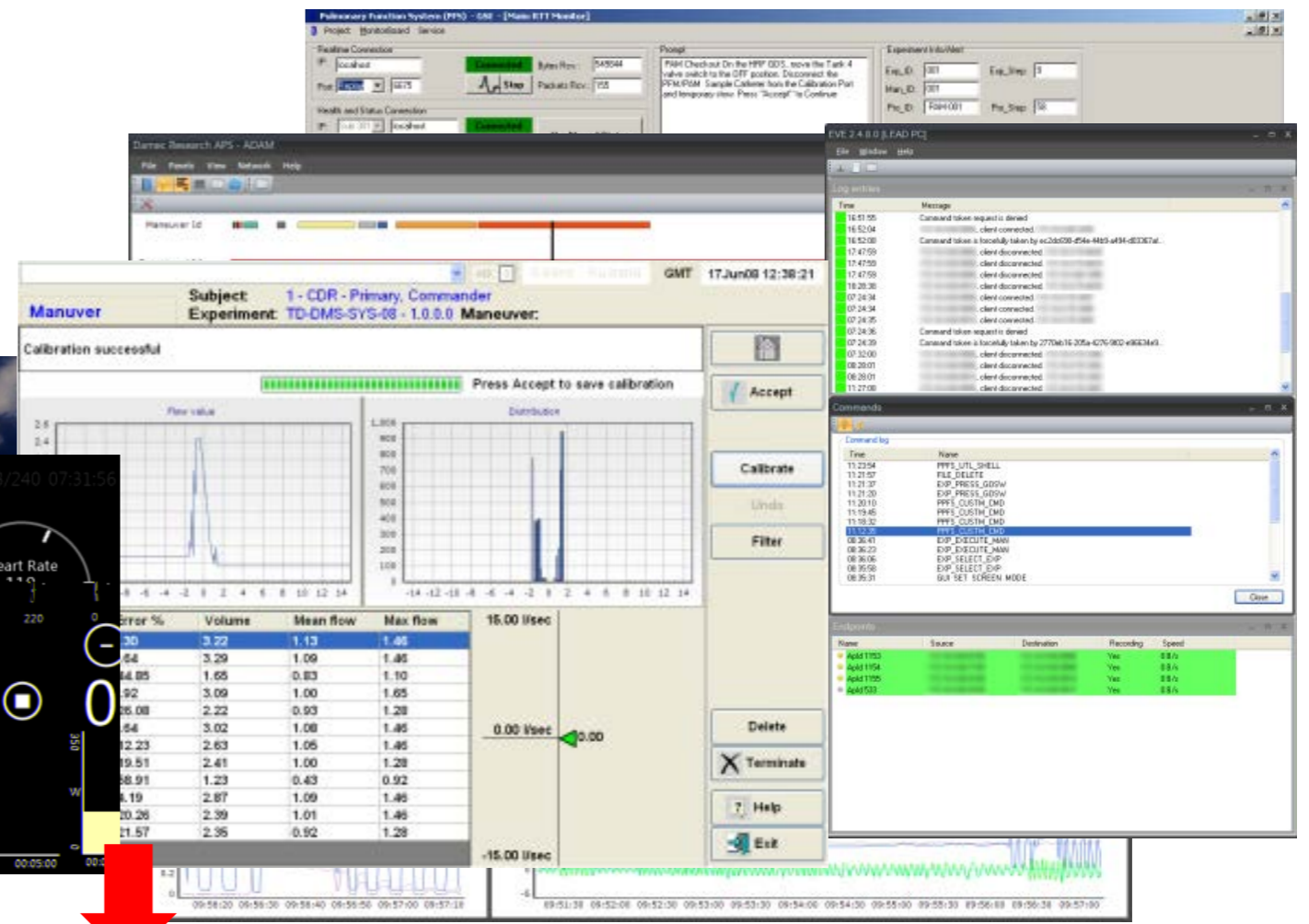
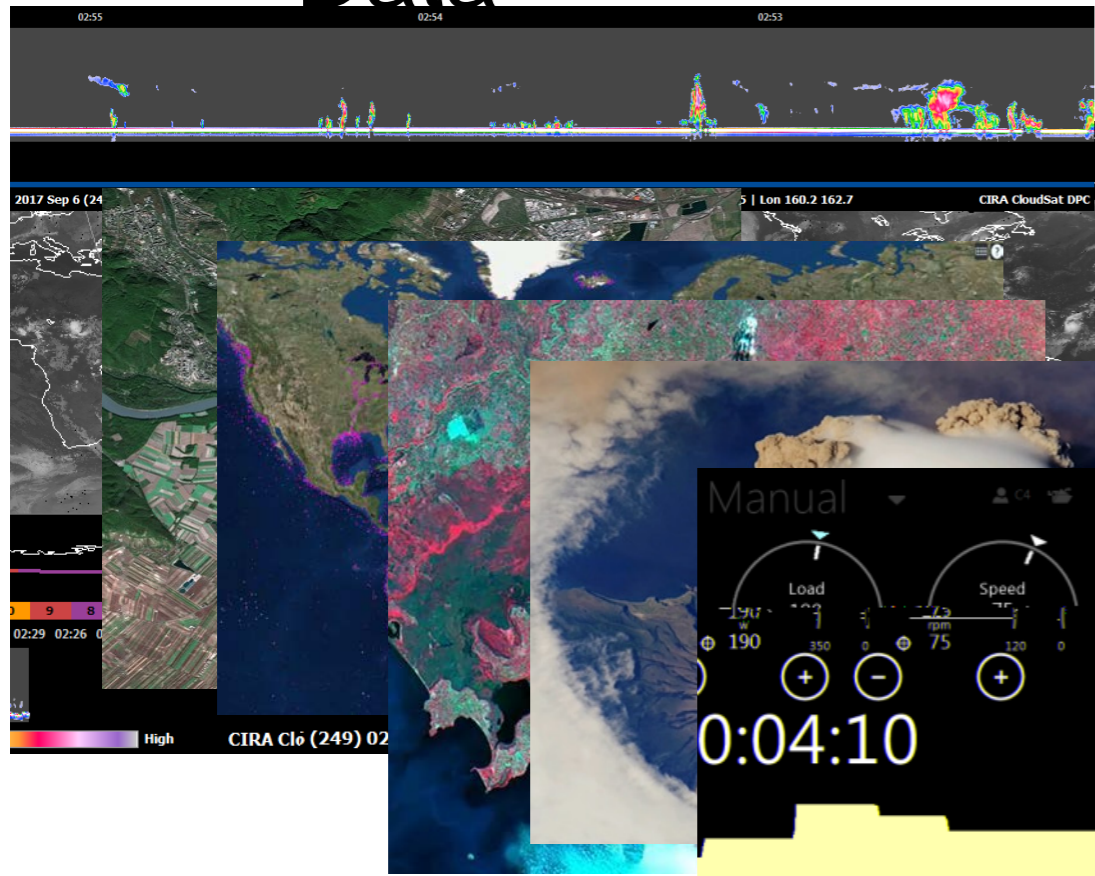
Attached



# Human Performance (Countermeasures)

# Geospatial Data

# Human Health and Performance



## Exploratory Market

Satellite Services:  
Data Analytics



# Takeaway

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- Enabling human spaceflight via wearable technology, water processing, and extending human performance in extreme environments
- Ensuring we have a sound business to allow R&D to provide the best products for extending life into extreme environments

# Danish Aerospace

COMPANY NORTH AMERICA



Thank you!

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