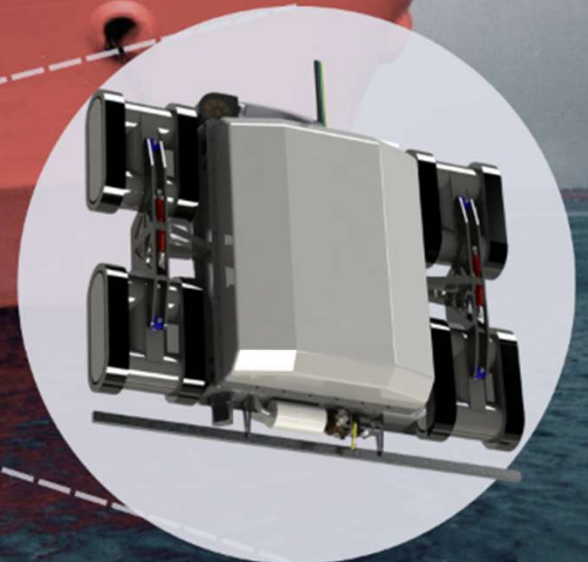


# Inspection and repair robot for FPSOs

Kongsberg Ferrotech



THE FUTURE OF OFFSHORE ENERGY & TECHNOLOGY

HERE COME THE ROBOTS

3D Printed Repairs on the Seafloor

Offshore Wind Wires in Demand

The Rig Market Consolidation + Green Rigs Drive Transformation

Life Extension Maximize OPEX Minimize Capex Footprint

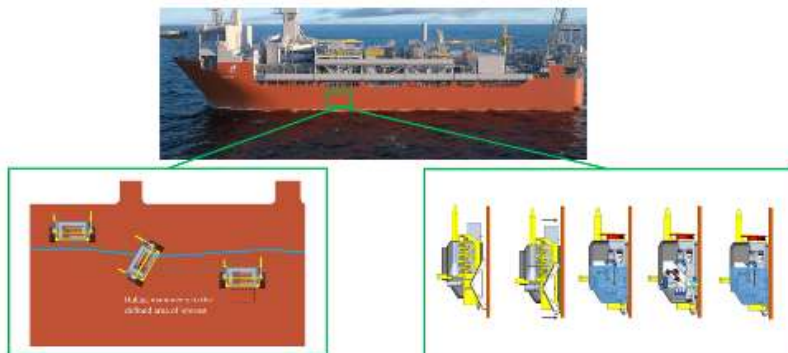
**The way forward - 3D printing under water**

Ongoing development project

- Digital modelling of repair and defect
- Like-2-like repair option
- Qualification scope under discussion with supermajors

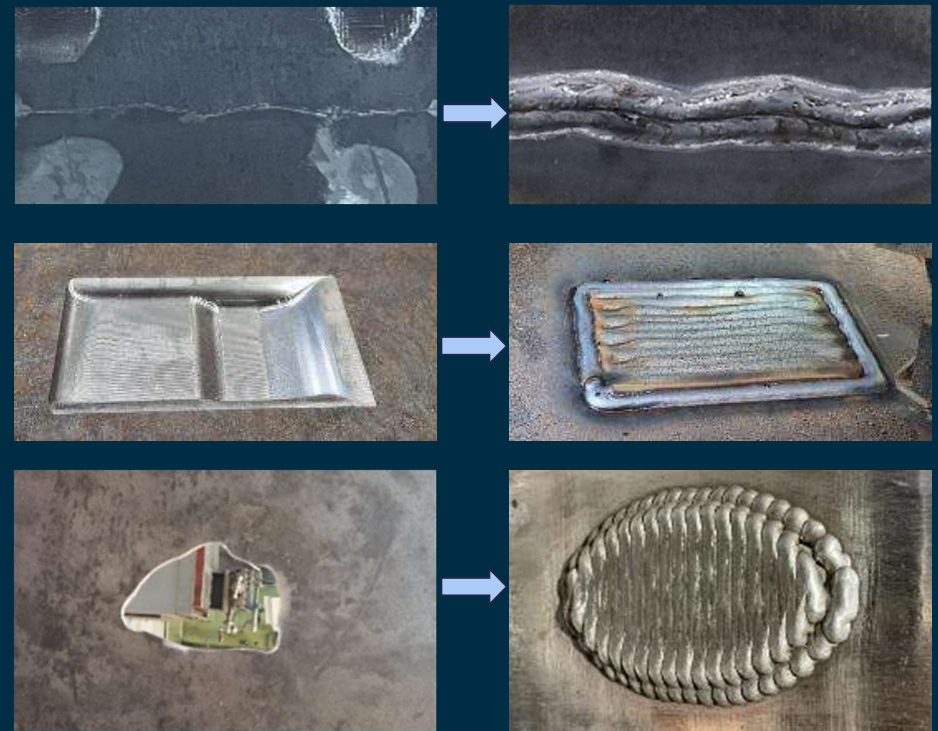
Kongsberg Ferrotech

## Hullius operational concept – launch from vessel

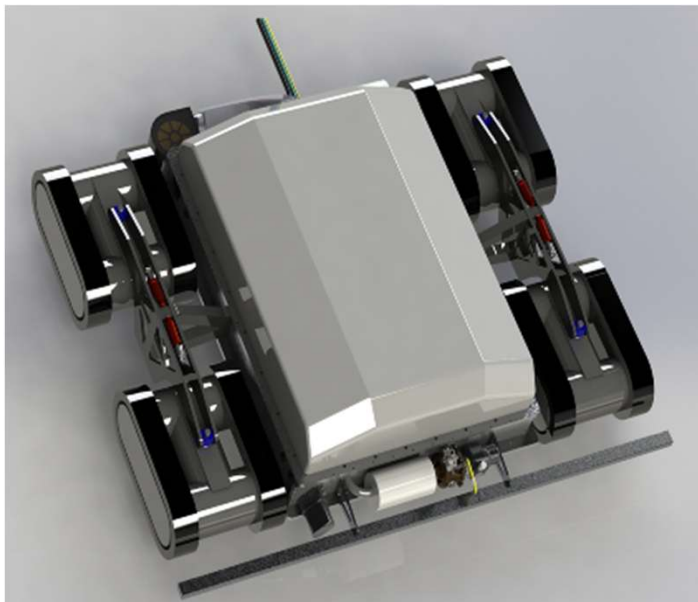
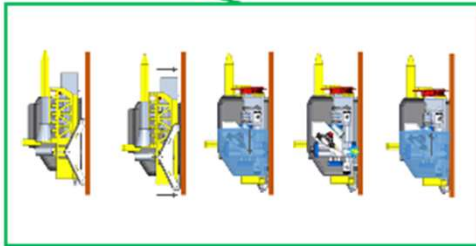
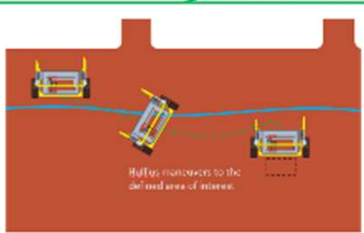
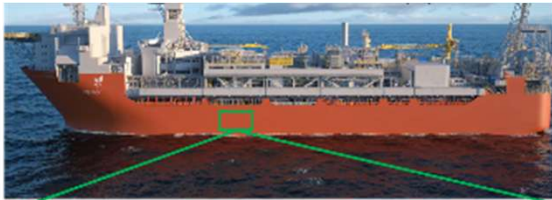


Kongsberg Ferrotech

## Submerged Additive Manufacturing developed as a repair capability



Kongsberg Ferrotech



## The Hullius concept

A self-propelled Robot, carrying all necessary tooling

Performs full inspection and repair in one mobilisation

Repair simulations performed in a Digital Twin

Permanent repairs of hull damages

*Access to the damaged area*

*Clean and controlled repair environment (dry)*

Avoid manual welding operations

*Reduced HSE risk*

*Avoid working in confined spaces*

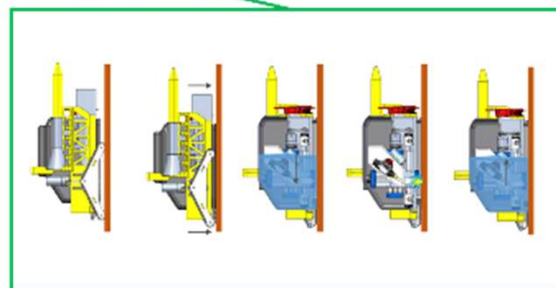
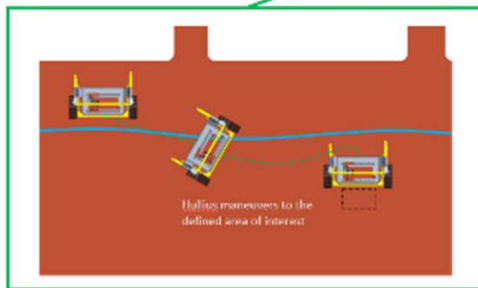
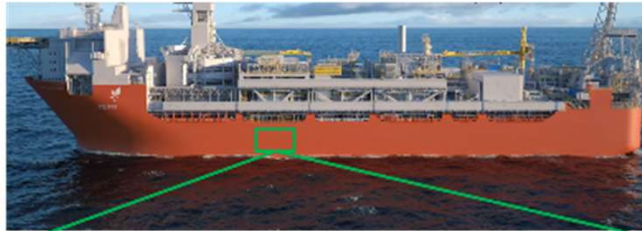
*Increased repair quality and documentation*

Operating weather window

*Focus on a compact design to reduce drag from waves and current*



# Hullius operational concept – JIP proposal



- Kick-off August 15<sup>th</sup> (tentative)
- 1+1 year duration
  - First demonstration on floating vessel after 12 months
- Building of Minimum Viable Product
- 3 industry partners
  - Petrobras - confirmed
  - TotalEnergies – confirmed
  - "Open"
  - Kongsberg Ferrotech
  - 3<sup>rd</sup> party
    - Class qualification
    - Project Coordinator

			Hullius JIP Program																								
			2025					2026									2027										
			Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Des	Jan	Feb	Mar	April	May	June	July	Aug
WP1	MS #1	Hull repair concept freeze - TRL2																									
	MS #2	UAMR Qualified process - TRL5																									
	MS #3	Digital Twin system for hulls - TRL4																									
	MS #4	System demonstration on asset - TRL6																									
	MS #5	Pilot operation - TRL7																									

## Contact information



Torgeir Bræin  
torgeir.braein@kferrotech.com  
+47 952 35 552

<https://www.kferrotech.no>

Kongsberg Ferrotech 

