



# ARV-70 - DANA V

70-M ARCTIC RESEARCH VESSEL

KNUD E. HANSEN carried out the concept, tender and Approval in Principal (AiP) design of the 70-m Arctic Research Vessel DANA V for the Technical University of Denmark (DTU).

The new research vessel is designed with the operational efficiency of a modern trawler combined with state-of-the-art multi-disciplinary science operations capability.

As of April 2025 the vessel is under construction at Freire Shipyard in Vigo, Spain.

The new multi-disciplinary research vessel will undertake:

- Seismic surveys,
- Oceanography microbiology,
- Bathymetric surveys,
- Meteorology,
- Fish stock monitoring
- Observation of sea birds & mammals.



Designed to operate worldwide, including year-round operations in the Baltic and North Sea, and summer and early autumn operations in waters around Greenland to approx. 80° northern latitude, the vessel is designed for Polar Code Category B.

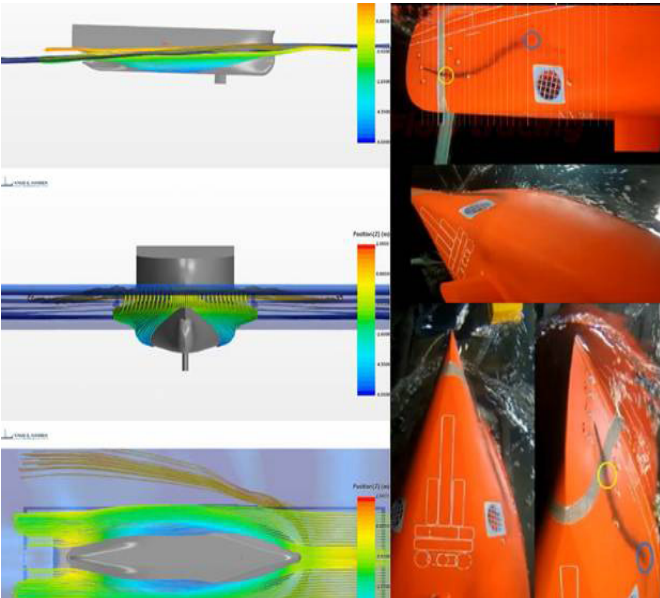
The vessel is not designed specialized as an icebreaker but for ice-strengthened operations in the vast belts of broken ice between open water and the ice edge.

The PC6 vessel can operate in polar waters with thin first-year ice, which may include old ice inclusions with total ice concentration of up to 5/10, and ice thickness up to 50 cm.

Due to the complexity of these operational and scientific requirements, the design team initially set out to clarify and prioritize the clients critical design drivers. Various design studies were also requested by the client to optimize complex design solutions. Some examples are described below.

Bubble Sweep Down CFD Analysis

Advanced Computational Fluid Dynamics (CFD) analysis, including Bubble Sweep Down (BSD) simulation, was performed and verified through model testing to ensure that entrained bubbles do not interfere with scientific acoustic transducers for Dana V.



ACCOMMODATION

Crew/Scientists	38 pers
Single cabins	18 pcs
Double cabins	10 pcs

SPEED

Service speed	12.00 kn
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MAIN PARTICULARS

Length o.a.	69.80 m
Length between p.p.	67.40 m
Breadth moulded	16.00 m
Depth to main deck	5.70 m
Scantlings draft	5.40 m
Design draft	5.20 m
Classification	

BV I ✕ HULL ✕ MACH, Special Service/Research Vessel  
SP38, Unrestricted navigation, X AUT-UMS, MONSHAFT,  
COMF NOISE 2, COMF VIB 2, URN SPECIFIED VESSEL,  
ICE CLASS IA, X DYNAPOS AM/AT, POLAR CLASS 6,  
POLAR CAT-B

FACILITIES ONBOARD

Laboratories (wet fish, dry, educational, plankton)
Flexible working deck
Machinery test platform
CFD hangar
Trawl deck
Scientific acoustic transducers
Extensive research facilities

MACHINERY & EQUIPMENT

Installed power	4,000 kW
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SCOPE OF WORK

Tender Design scope:

Technical Specification
General Arrangement
CFD Bubble Sweep Down & hull optimisation
Propeller design
Model testing (Propulsion, Seakeeping, Ice, Cavitation & URN)
Approval in principal design package
Structural design
Vibration Prediction
Machinery, Electrical & HVAC systems
Detailed interior Design
3D & Virtual Reality
Life cycle analysis

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