The RRS ‘Sir David Attenborough’ will be one of the most sophisticated floating research laboratories operating in the polar regions and will maintain the UK’s position at the forefront of climate and ocean research. Partnered with Rolls Royce, Cammell Laird are responsible for the full design, build and integration of the highly complex vessel.

Advanced Twin Screw Diesel-Electric propulsion with separate UMS Engine rooms
- Full Dynamic Positioning capability in 35 knots cross winds
- Ability to break ice at a thickness of 1.5m
- DNV GL SILENT-R notation at 11 knots
- Worldwide operation from -35°C to +35°C
- State of the art scientific sensors and laboratories
- Seabed winch operations at 9000m depth
- ROV and advanced UAV support
- Helideck and hanger for two Puma sized helicopters
- Extensive logistics capability to deliver 4000t of cargo
- 19000m range at 13kn; 17.5kn maximum speed
- Endurance in ice for up to 60 days
- Accommodation for 30 crew and up to 60 scientists and support staff
- 128m (LOA) x 24m (B) x 7.5m (D) with a light displacement of circa 10,000 tonnes
PROFILE
The RRS 'Sir David Attenborough' has been developed by Rolls Royce and Cammell Laird to the requirements of the UK's Natural Environment Research Council (NERC). The ship is designed to provide a state-of-the-art research facility with elevated endurance and ice capability to operate in Polar regions and ambient air temperatures from -35°C to +35°C.

The ship will be operated by NERC’s British Antarctic Survey (BAS) to resupply their five Antarctic research stations and promote the UK’s world-leading capability for research in both Antarctica and the Arctic. It will enable cutting-edge science across a broad range of disciplines including physical, biological and chemical oceanography, marine geology and geophysics, and atmospheric science.

The hull design minimises Underwater Radiated Noise (URN) with the fore ship optimised for ice breaking, seakeeping and minimal air bubble sweepdown to get the best possible results for acoustic surveys.

A helideck is provided for the use of helicopters and UAV’s, together with a hangar and refuelling station, providing scientific, logistics and search-and-rescue capability.

The vessel employs a twin shaft CPP hybrid diesel-electric 690V propulsion configuration. Two pairs of diesel generator engines (of the same type but differing capacities) drive two asynchronous motors on each shaft. This allows for great flexibility, energy optimisation and high levels of redundancy whilst covering the very different requirements of ‘SILENT R’ and ice breaking missions.

Two Large Capacity battery systems provide load smoothing. Four Gill thrusters provide full DP capability and two Rolls Royce ‘Promas’ rudders ensure enhanced efficiency and manoeuvrability.

CLASSIFICATION
LRS 100A1, LMC, Polar Research Vessel, UMS, DP (AA), NAV1, IBS, Ice Class PC6 (main propulsion lines PC5), CAC1, LFPL, ECO (BWT, GW, OW, IBS)

DIMENSIONS
Length overall: 128.90m
Length between p.p.: 121.00m
Breadth, moulded: 24.00m
Depth to Main Deck: 11.00m
Depth to deck 3, moulded (Ro-Ro deck): 5.75m
Design draft: 7.00m
Scantling draft: 7.50m

DEADWEIGHT
Deadweight on design draft, approx.: 4475t

CARGO
Flexible Science and Cargo holds, approx.: 2200m³
Cargo deck, approx.: 650m²
Bulk AVTUR tanks and cargo pumps, approx.: 660m³

SCIENTIFIC OPERATIONS
The vessel will have the capabilities to perform operations including:
subsea acoustic survey with a range of transducers/transceivers; towing of scientific equipment with up to 12000m of wire deployed; deployment and recovery of scientific packages down to 9000m water depth (over the side or through the moonpool); CTD handling; subsea coring; data acquisition and storage; seismic survey; supply of both dry and liquid cargoes; VERTREP operations; advanced ROV and UAV deployment.

PROPULSION & POWER
2 x RRM Bergen B33:45L9A, each approx. 5400 kW
2 x RRM Bergen B33:45L6A, each approx. 3600 kW
2 x CPP driven by 2 x 2750 kW asynchronous motors/shaft 1 x Harbour Generator, approx. 885 kW
2 x Battery systems, each 2500 kW/500 kWh
2 x Twisted leading edge Rolls-Royce Promas rudders 1 x Tees White Gill thrusters (2 bow + 2 stern), each approx. 1580 kW

SPEED & ENDURANCE
Maximum speed on design draft: 17.5 knots
Economic transit speed: 13 knots
Cruising range at 13 knots, approx.: 19000 NM
Acoustic survey speed [meeting Silent R requirement]: 11 knots
Endurance in ice: 60 days

SHIPS EQUIPMENT
Auxiliary vessels: Cargo tender / Workboat / GP inflatable boats
Scientific winches: Deep Water Coring / Deep Tow / General Purpose / CTD / Metal Free CTD / Hydrographical / Biological
Facilities: Moonpool / Cargo crane 50t / Stern A-frame 30t / Misc. deck cranes.

COMPLEMENT
Scientists: 60 persons
Crew: 30 persons

SERVICE MODES
The vessel will operate safely and economically in all service modes including acoustic survey modes; ice breaking mode; towing mode (scientific equipment over stern or side, speed range 6-8 knots); transit mode of 13 knots; Stand-by in harbour, with power supplied from own generators or from shore supply.