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Scientific Handling Systems from KONGSBERG

The journey from James Cook to Meteor IV, via Sir David Attenborough

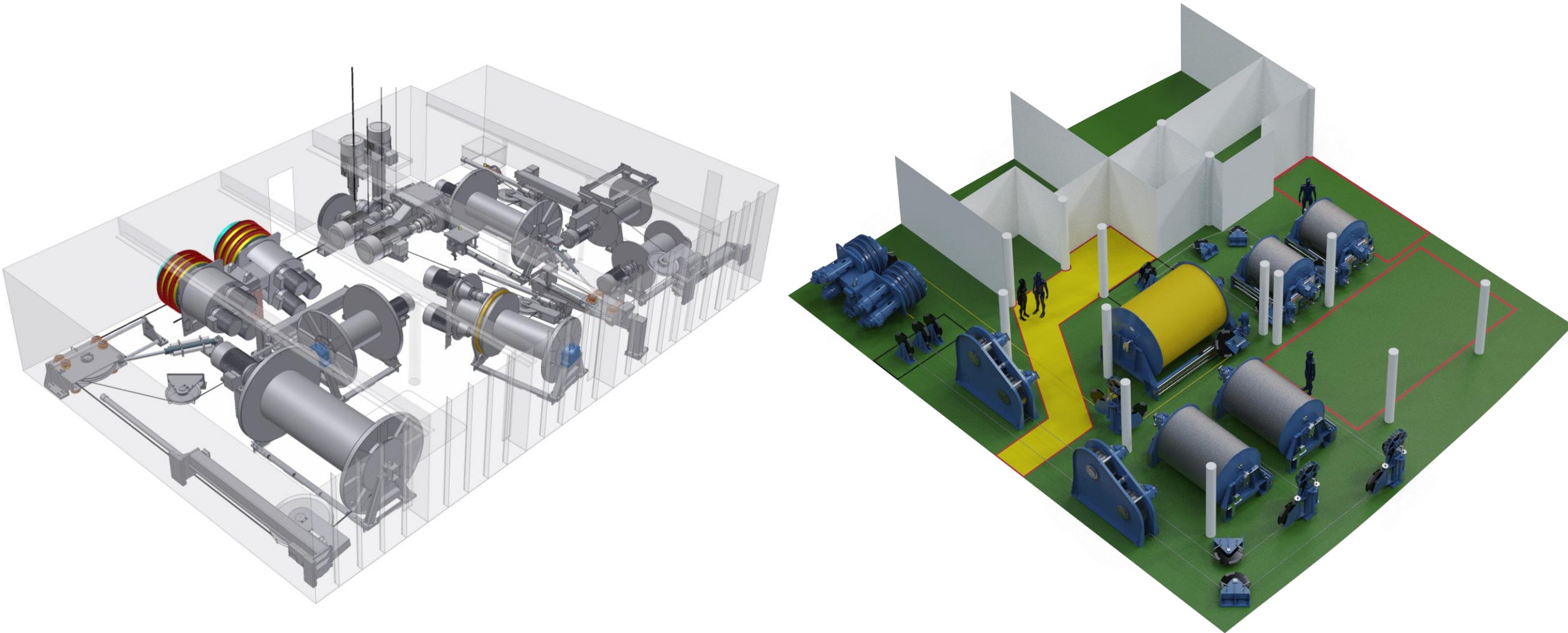




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Scientific Winch Systems from KONGSBERG

Winch room layout

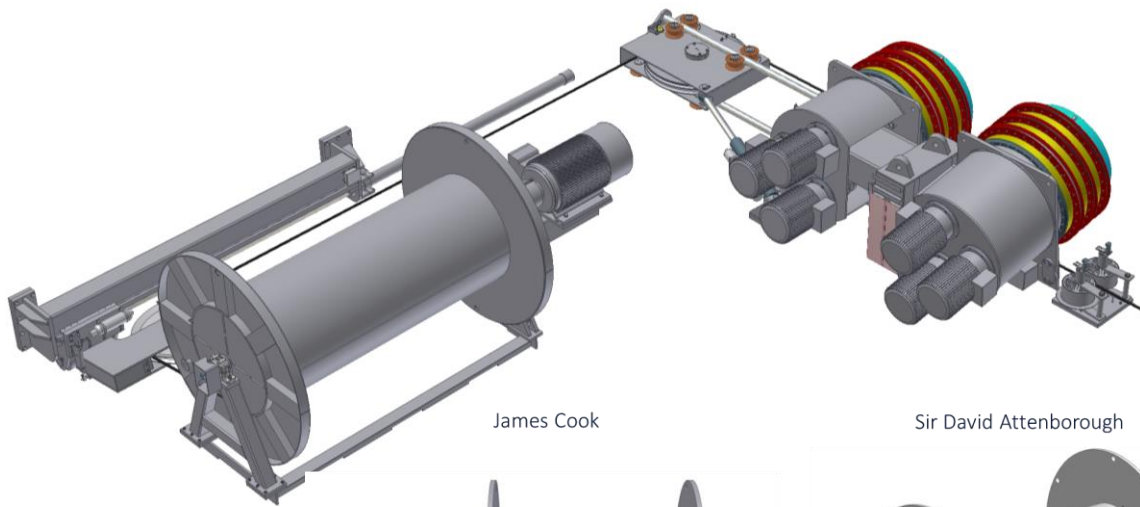




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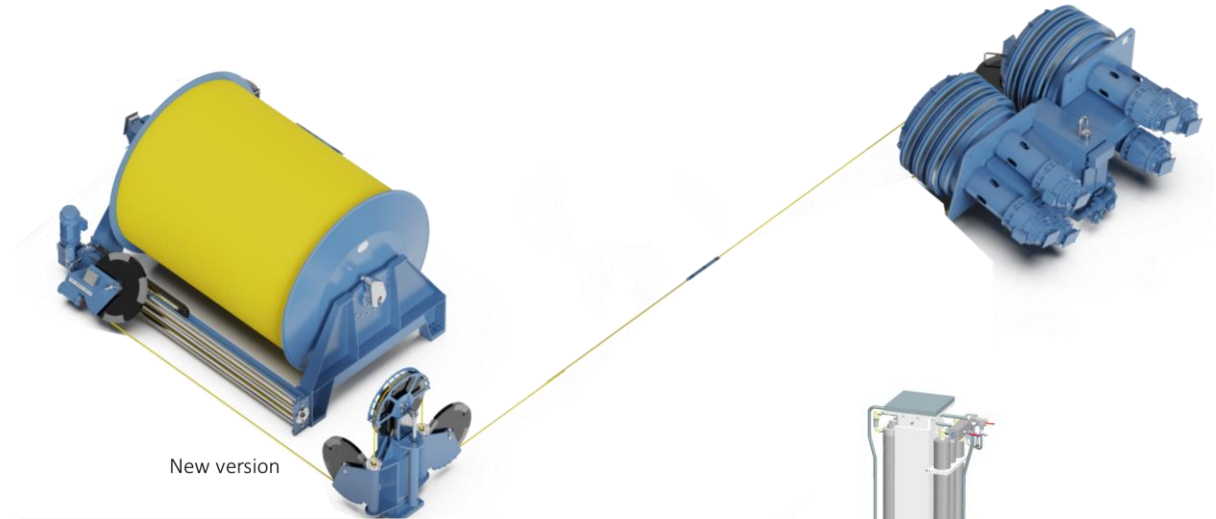
Scientific Winch Systems from KONGSBERG

Winch system design

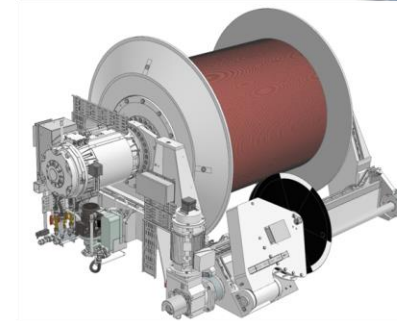
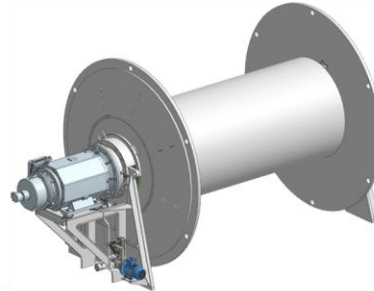
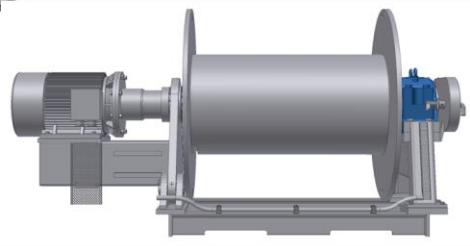


James Cook

Sir David Attenborough



New version

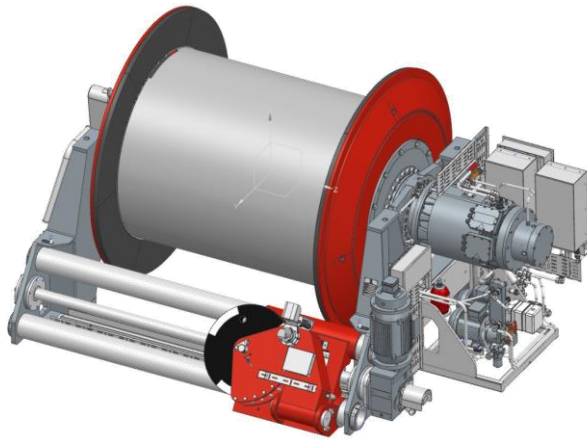




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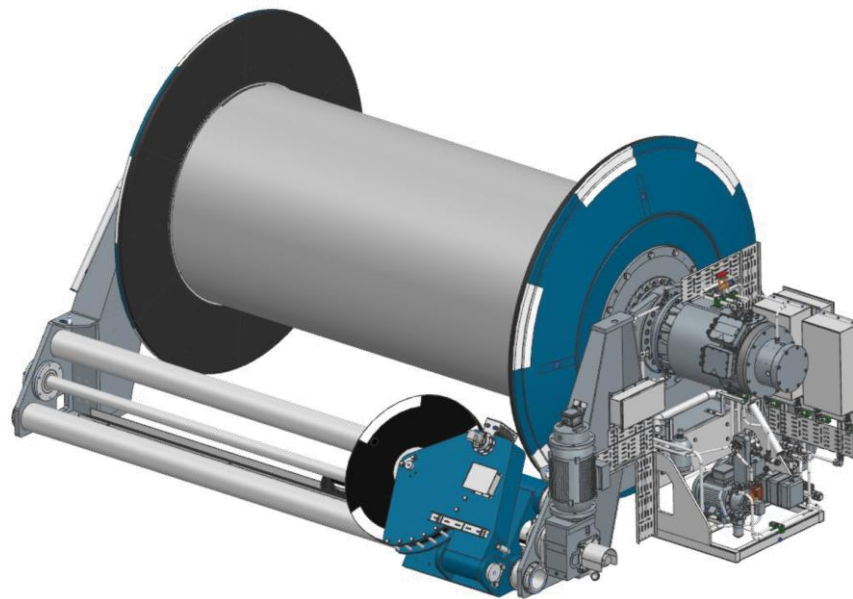
Winch modularization

Large variation in capacity and performance requires multiple base designs



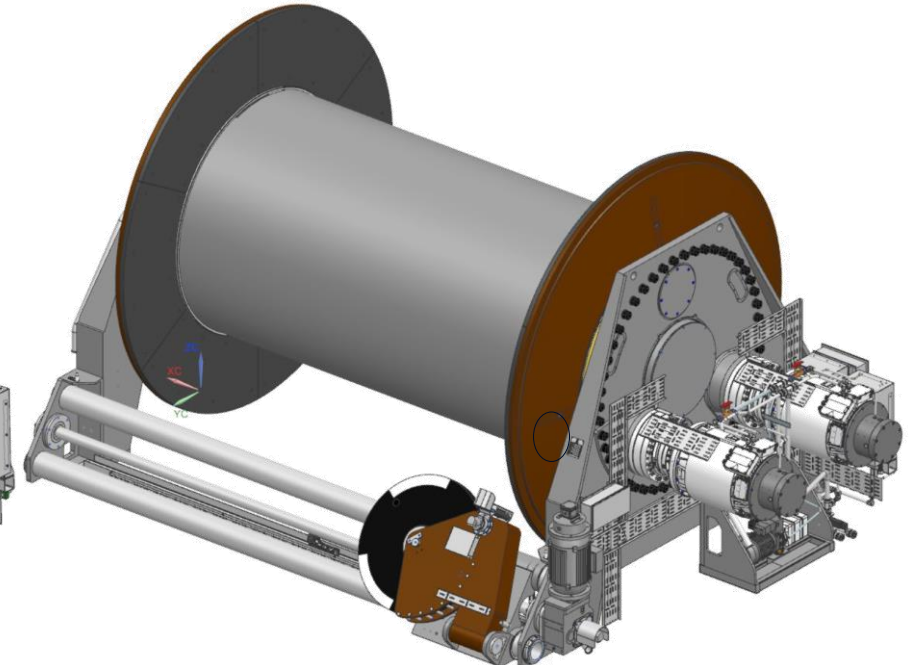
Small range

- <10 Te
- 550 mm sheave
- <1000 mm drum core



Mid range

- <10 Te
- 550 and 800 mm sheave
- 1250 mm drum core



Large range – Twin motor

- >10 Te
- >800 mm sheave
- >1300 mm drum core



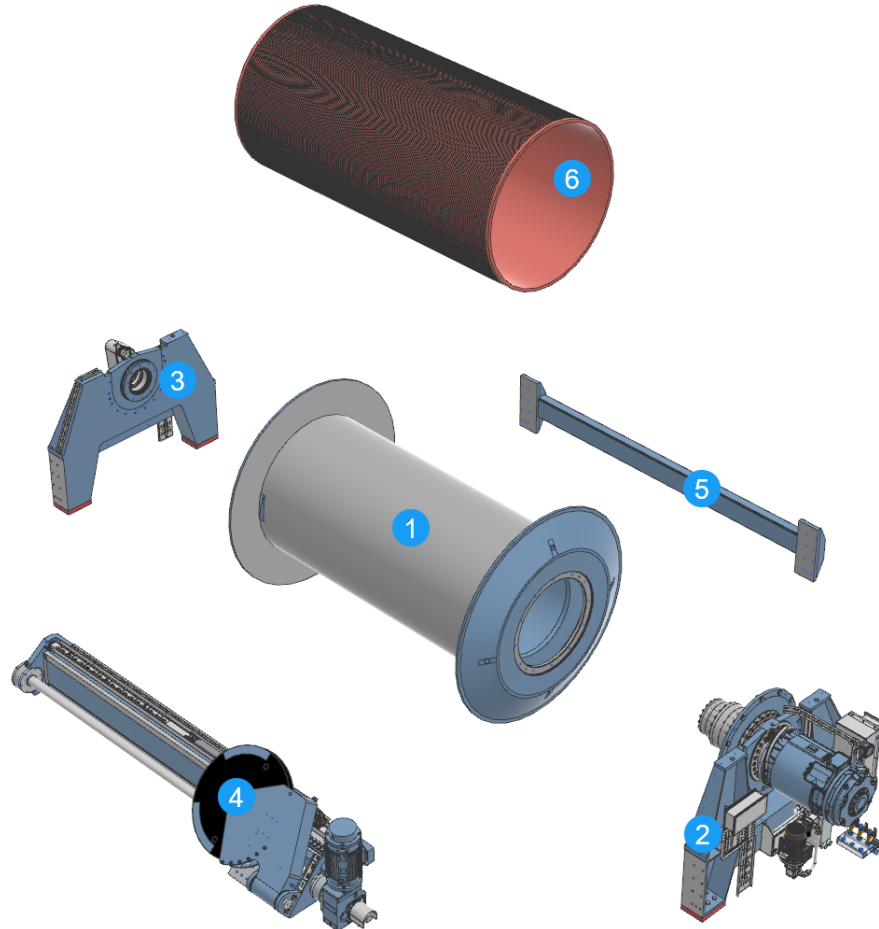
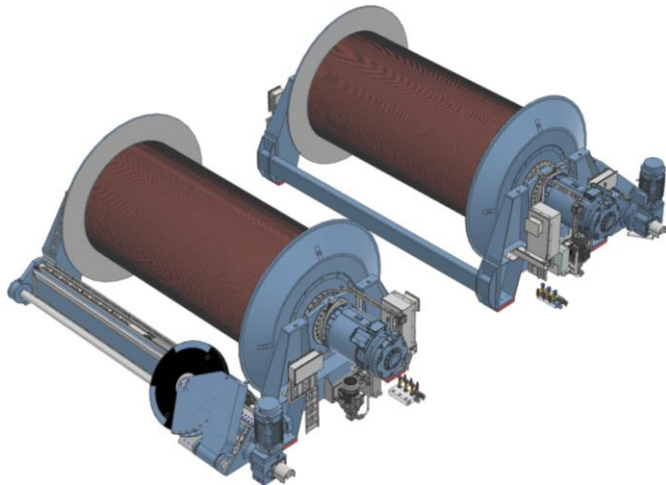
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Winch modularization example – Mid range

Multiple winches assembled from a few standard parts

Key objectives for modularization

- There are no such thing as identical winches.....
- Minimize cost, risk, work and parts needed to cover variations in winch room arrangement, cable diameters, cable lengths and winch performance
- Three ranges needed
 - Small single motor winches
 - Medium single motor winches
 - Large twin motor winches
- High focus on re-use and commonalities in and across projects



Key modules

1. Drum

- One drum diameter and material thickness
- Six standard sizes (Length and shield diameter) to accommodate different diameters and lengths of cables

2. Drive end bracket

- Two sizes to accommodate two spooling sheave sizes
- Predefined bolt interface for adapters, instrumentation, junction boxes and similar – including gear cooler
- A selection of standard motors, gears and brakes with adapters to drum and drive bracket

3. Free end bracket

- Mechanically identical to drive end bracket
- Interface to slip ring, junction box and encoder assembly

4. Spooling device

- Two sheave assemblies
- Length according to drum length

5. Support bracket

- Lengths adapted to drum length

6. Lebus

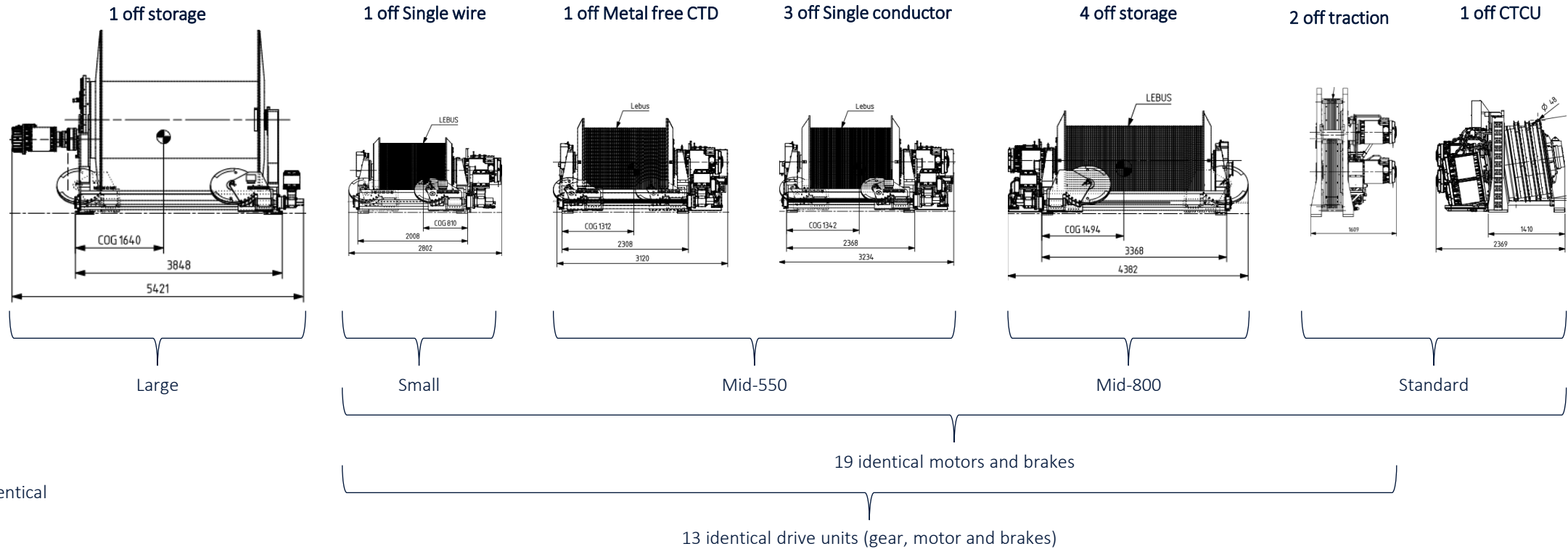
- Custom design for each cable
- Shims on shield as required



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Large Scientific Winch System

Effect of modularization on scientific winch system

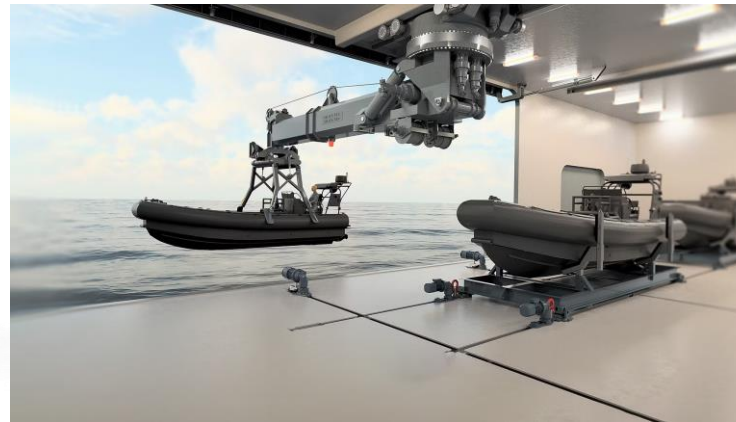




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Some of the stuff we did not get to talk about...



WORLD CLASS – Through people, technology and dedication

KONGSBERG PROPRIETARY - See Statement of Proprietary information