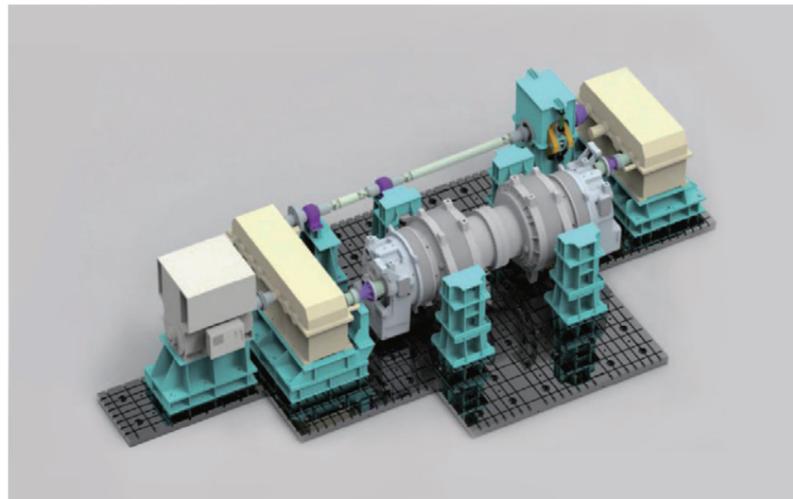


## 5.5 MW Gearbox Performance and Durability Assessment Test Equipment

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⇒ Test equipment for performance and durability assessment with the variable torque and speed conditions for a large gearbox up to 5.5 MW



### Client / Market

- Large gear box manufacturer (Step-up gearbox for wind turbine, Reducer gearbox for ship)

### Necessity of this Technology

- There is a need for a test equipment for large gearbox that could vary the initial speed and torque.
- For R&D and commercialization of large gearbox, the quality needs to be certified or data needs to be secured through performance and durability assessment, but establishment of test equipment for large gearbox in Korea is inadequate, and the test is mostly performed by foreign company or institution.
- The mechanical type large gearbox taster is inconvenient to adjust the torque through multiple trial and error as the tester cannot accurately apply the set initial torque to the gearbox or the tester applies the torque with the manual apparatus without setting an initial torque.
- Since the tester manually applies the torque to the axis to increase the torque applied to the gear box, the speed and torque cannot be changed during the test.
- An apparatus and a test apparatus that could perform the test under a realistic condition are in need.

### DESIRED PARTNERSHIP

Technology Transfer

Licensing

Joint Research

Other



### TECHNOLOGY READINESS LEVEL [TRL]

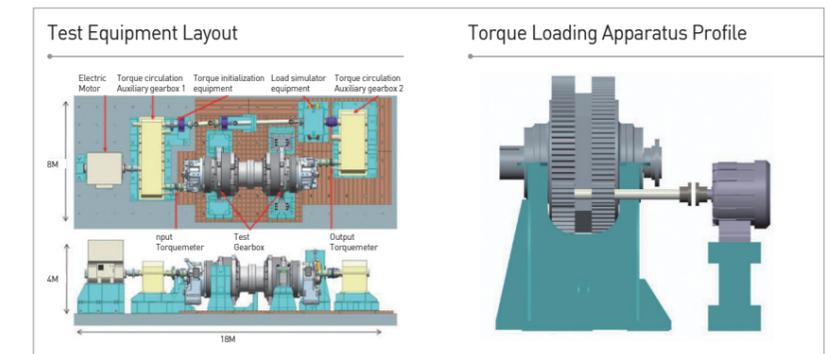
Research, basic explanation | Project concept or idea development | Technology idea verification | Prototype development | Trial product production/evaluation in similar environment | Pilot field demonstration | Development and optimization of commercial model | Commercial product demonstration | Mass production and initial market launch

### Technical Distinctiveness

- It installs the epicyclic gearbox for torque application on the torsion axis that increases the torque applied to the gearbox and rotates the ring gear of the epicyclic gearbox to the actuator or installs a torque control motor to accurately increase the torque applied to the gearbox. The performance/durability assessment can be done under various conditions.
- By setting the torque with the automatic torque application apparatus (actuator or torque control motor) and the control system, the exact torque can be applied to the gearbox, and it reduces the test time.
- With various gear box tests, a separate epicyclic gearbox, automatic torque application apparatus and control system can be installed to realize initial torque and variable torque instead of the method of applying a load to the torque arm of the epicyclic gearbox to generate torque.

### Excellence of Technology

- A separate epicyclic gearbox, automatic torque application apparatus and control system can be installed each to apply the exact initial torque, and desired torque can be realized without stopping during the performance and durability test of a large gearbox.
- Gearbox test and fatigue test expert, and 10 research engineers with the sum of their experience in gearbox performance test and fatigue analysis adding up to 85 years participated in this research.



### Current Intellectual Property Right Status

#### PATENT

- Gearbox Tester Having Variable Torque Function and Variable Torque Applied Method (KR1109540)
- Setting Apparatus of Initial Torque for Gearbox Tester and Setting method of Initial Torque (KR1099695)
- Torque Loading Device and Torque Control System (KR1380210)