



Test Rigs for the Aviation Industry
For tested flight safety
Technical Information

Test Rigs for the Aviation Industry

For the aviation industry RENK produces state-of-the-art turnkey test systems for

- Main rotor gearboxes
- Intermediate gearboxes
- Tail gearboxes
- PTO's
- Rotor systems
- Power gear box (PGB)
- Geared turbo fan (GTF)
- Accessories loadouts

RENK's competence and expertise is based on the successful development, design, manufacturing, and installation of high specification test systems.

Most demanding requirements with respect to power and complexity can be met. The fields of application comprise R&D and repair/overhaul/quality assurance.

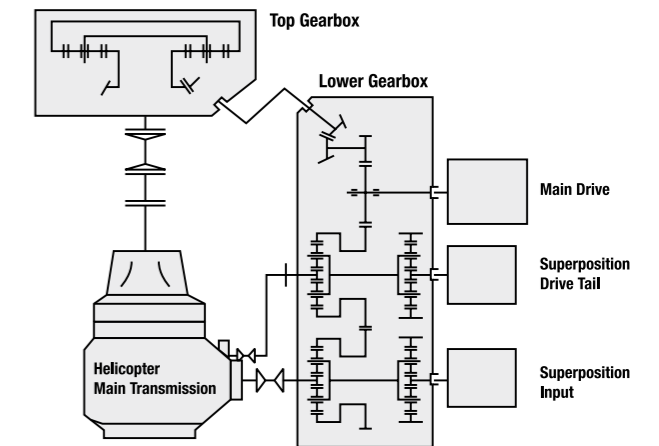
As well as developing test rigs, RENK consults during the planning phase. RENK also designs, supplies and installs test rig related equipment such as cooling water systems, power transformer/ power supply equipment and insulated foundation slabs.

Design of RENK Test Rigs

RENK test systems feature a clearly structured mechanical, hydraulic, and electrical design in combination with sophisticated control systems and electronics.

Superior performance, high reliability, and ease of operation and maintenance combined with cost-effectiveness are the predominant design criteria.

Depending on the power range and type of application, the test rigs are designed as open-loop systems, or feature power recovery which is performed by either mechanical or electrical regeneration.



Schematic – Mechanical Power Recovery

Electric Power Recovery

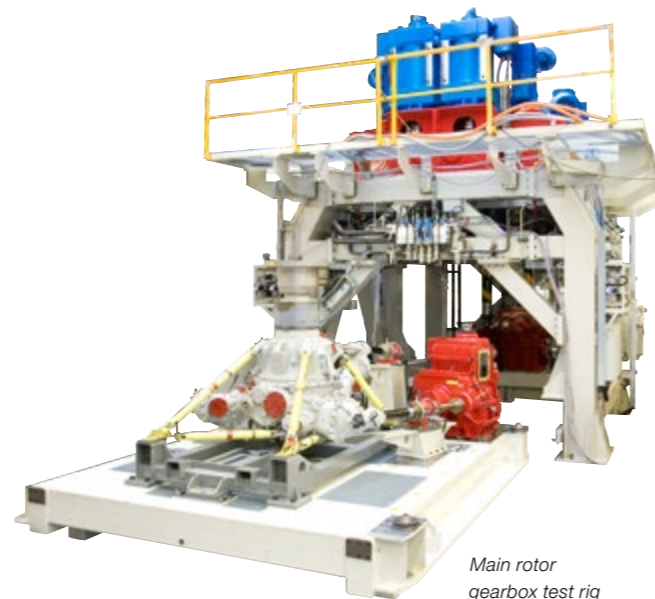
With electric power regeneration either AC or DC motors are utilized generating the full power range at input(s) and output(s). Adjusting gearboxes transform the moderate motor speeds of high (inputs) or low (outputs) levels. For the lower power range, DC motors serve as drivers with power recovery via the 4-Q-converter and AC network.

Mechanical Power Recovery

Mechanical power is recuperated by closing the drivetrains from the main rotor shaft and tail rotor output towards the propulsion input(s) by gearboxes. For adding torque, independent of power on the single loops, a relatively small amount of power is continuously fed into the respective loops by torque controlled superposition drives.



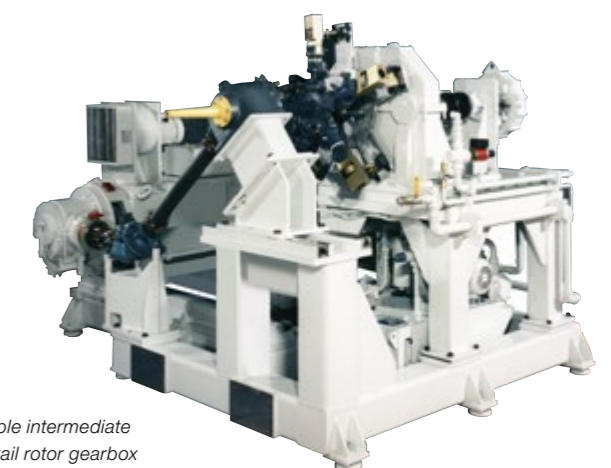
Hauptgetriebe Prüfstand im elektrischen Verspann



Main rotor gearbox test rig



Whirl-Tower Test Stand



Flexible intermediate and tail rotor gearbox test rig

Helicopter types:

- | | | |
|----------------|-------------|-------------|
| • EH 101 | • A8 350 | • OH-58 D |
| • NH-90 | • H-53 K | • KA-62 |
| • AB-139 | • CH-47 F | • KA-52 |
| • Super Lynx | • AH-64 A-D | • KA-32 |
| • EC 522 | • AH-64 E | • Mil-Mi 17 |
| • Bell 205/206 | • UH-60 | |



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