



# Large Rotor Spin Test Rig

## Description

Design & manufacture of a large rotor, medium speed spin test rig, with a maximum speed of 5,100 RPM for mechanical integrity spin testing of DC motor rotors up to 390 kg and 1,100 mm long. The rotors are simply supported at each end by a driven precision headstock and tailstock.

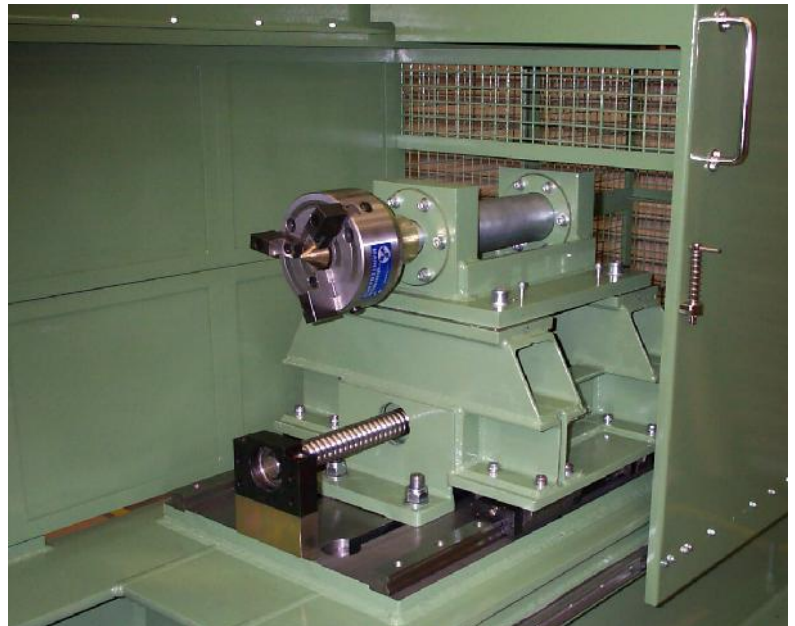
The headstock was driven by an AC synchronous motor via a vee belt. To enable rotors of different lengths to be tested, the tailstock position was adjustable by means of a 40 mm dia precision ballscrew. The rotor was designed to run sub-critically, using grease lubricated pre-loaded angular contact bearings. Bearing vibration condition monitoring was integrated into the control system.



*Large Rotor Spin Test Rig*

## Specification Summary

- Max speed = 5,100 RPM
- Max rotor length = 1,100 mm
- Grease lubricated precision angular contact bearings
- 37 kW AC synchronous motor with four off cogged vee belt drive
- Inverter controlled
- Sub-critical, simply supported rotor design
- Adjustable tailstock
- Bearing vibration monitoring



*Adjustable Tailstock*

## Disciplines Used

- Conceptual & mechanical design, stress FEA, rotordynamics analysis, manufacture, assembly, test & commissioning.