Rotor Hub and Blade Test Facility

CAPABILITY SHEET · TENSION CHANGES THE TWIST. · A STIFF FRAME, ROOT FIXTURES, SERVO-HYDRAULIC ACTU

THE ONE IDEA

PRINCIPLE	Tension changes the twist.
WHY IT MATTERS	The pull of the blade stiffens a strap in torsion, so a twist tried with no pull proves a different part, and the pull is held as a force while the specimen twists.

THE FACILITY

FRAME	A stiff reaction frame with a short load path, and root fixtures and adapters that hold the specimen on its own axis.
ACTUATORS	A tension actuator in force control, a torsion actuator with a torque arm, and bending actuators for flap and lead-lag.
CONTROL	A controller that runs every channel together, phased and following the spectrum, with load-cell feedback.
TRIPS	Trips on load, displacement and stiffness that work apart from the controller, and guards with interlocks.

THE METHOD

ORDER	Duty, frame and fixtures, actuators and power, control, instruments and trips, build and prove. The control and the trips are the two that a quick job skips.
LIMITS	Loads, torques, forces, rates and sizes come from the customer's duty, and are not printed here.

CONFIGURATIONS

TENSION-TORSION	A blade root tension-torsion facility: a held pull and a twist on a blade root or a strap.
MULTI-AXIS	A blade root multi-axis facility: pull, twist and two bendings together, phased, following a spectrum.
HUB PLATE	A hub plate test rig: arms that stand in for the blades, each pulled by an actuator.

STANDARDS & SCOPE

REFERENCE	Public reference: 14 CFR 29.571, for the fatigue tolerance of metallic structure in rotorcraft.
SCOPE BOUNDARY	It is the rotor hub and blade test facility: not a servo-hydraulic fatigue machine, not a shaft torsion fatigue machine and not an actuator test rig.
STATUS	Neometrix engineers helicopter rotor hub and blade test facilities to order, and no delivered helicopter rotor hub and blade test facility is claimed.

DEFENCE PROGRAMMES DESK

sales@neometrixgroup.com · +91 7777 876 876 · neometrixgroup.com

Neometrix Defence Limited · E-148, Sector 63, Noida, Uttar Pradesh, India