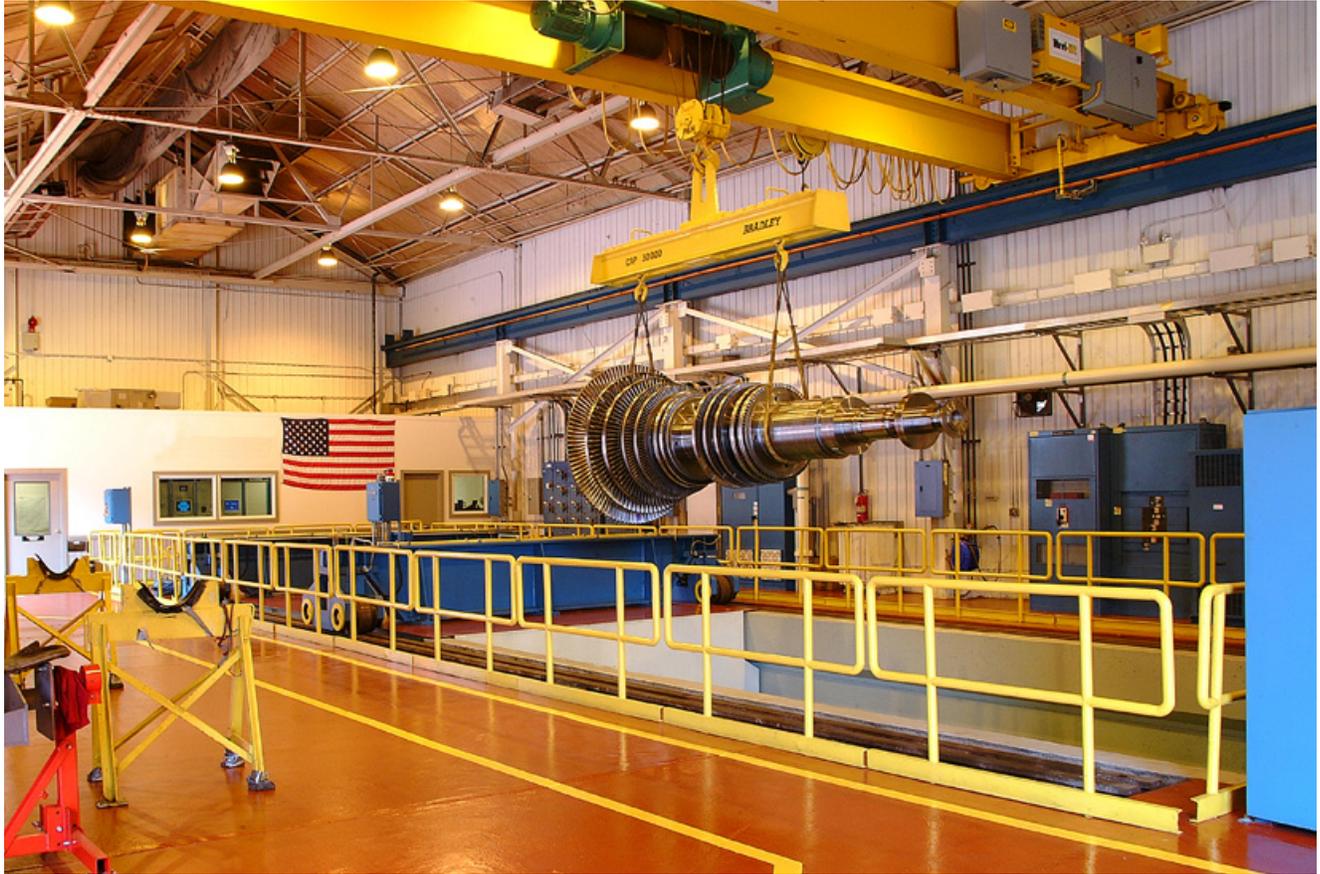




High-Speed Rotor Balance



During planned or unplanned maintenance, turbomachinery rotors are typically balanced at low speed before reinstallation. However, low-speed balance may not be adequate to ensure the safe and efficient operation of the rotor when it is put back in service. Repairs to the rotor or replacement of rotor parts can cause changes to the rotor dynamics that do not appear during low-speed balance. Undetected unbalances can excite the rotor at operating speeds, causing excessive vibration. High vibrations can trigger an unplanned shutdown, potentially costing millions of dollars in lost production.

Elliott's high-speed balancing capabilities can minimize vibration in any manufacturer's rotor throughout the entire speed range. High-speed balance also relieves residual stresses introduced during the repair process, and allows the rotor components to settle into place. Following a high-speed balance at Elliott's facility, our experienced team of test engineers and technicians carefully review the results with the customer to confirm that the unbalances causing vibration have been corrected. This minimizes the risk of rotor vibration issues in operation.

High-Speed Balance Candidates

Certain circumstances dictate that a rotor should be balanced at high speed before being returned to service including:

- ◆ Problem rotors with persistent vibration issues
- ◆ Repaired or rebladed rotors
- ◆ Improperly stored spare rotors
- ◆ Any turbomachinery critical to a production process

Our customers can ship these rotors to Elliott for high-speed balance and verification.

24-Hour Turnaround

At Elliott, we know that turnaround timetables can be tight. We regularly balance rotors and ship them back to customers within 24 hours after delivery to Elliott's high-speed balance facility.

Facility Accommodations

The Elliott high-speed balance facility has three pairs of bearing pedestals that support rotors weighing from 130 to 44,000 pounds (59 to 19,958 kg). The current crane capacity is 40,000 pounds (18,144 kg). The bearing pedestals can accommodate either tilting pad or liner-type bearings. Elliott maintains a wide range of standard size tilting pad journal bearings. If our standard bearing does not fit the specific application, we can design and manufacture a suitable bearing. Below are the specifications for the pedestals.

DH4 Pedestal (Manufacturer: Schenck Trebel Corp.)

- ♦ Maximum rotor weight: 2,750 lb (1,247 kg)
- ♦ Maximum speed: 30,000 rpm (500 Hz)
- ♦ Maximum rotor component diameter: 96 in (2,438 mm)
- ♦ Maximum rotor length: 303 in (7,696 mm)
- ♦ Journal bearing diameters: 2 to 5 in (51 to 127 mm)

DH7 Pedestal (Manufacturer: Schenck Trebel Corp.)

- ♦ Maximum rotor weight: 27,500 lb (12,474 kg)
- ♦ Maximum speed: 12,000 rpm (200 Hz)
- ♦ Maximum rotor component diameter: 96 in (2,438 mm)
- ♦ Maximum rotor length: 303 in (7,696 mm)
- ♦ Journal bearing diameters: 5 to 11 in (127 to 279 mm)

DH70 Pedestal (Manufacturer: Schenck Trebel Corp.)

- ♦ Maximum rotor weight: 44,000 lb (19,958 kg)
- ♦ Maximum speed: 10,000 rpm (167 Hz)
- ♦ Maximum rotor component diameter: 96 in (2,438 mm)
- ♦ Maximum rotor length: 303 in (7,696 mm)
- ♦ Journal bearing diameters: 8 to 14 in (203 to 350 mm)



Elliott's state-of-the-art bunker system.



Exciter rotor weighing 19,000 pounds (8,618 kg) being lowered into bearing pedestals in preparation for high-speed balance.

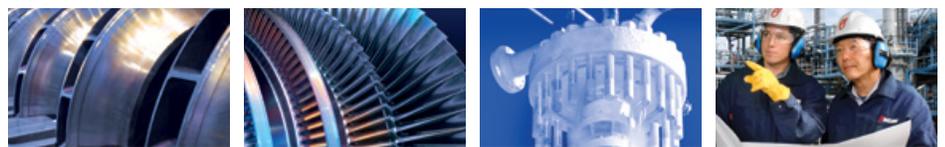


Bearing pedestals for rotors 27,500 to 44,000 pounds (12,474 to 19,958 kg).



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