SCHENCK

Spin-testing of all kinds of rotors, including toothed and bladed ones

Strong burst protection of proven design

Ergonomic operating concept

Compact design, easy to set up mounts directly to shop floor (no special foundation required)

Broad speed range thanks to modular drives

Easy control and recording of the spin tests with CAST

Spin test systems

Series BI 2 - BI 4

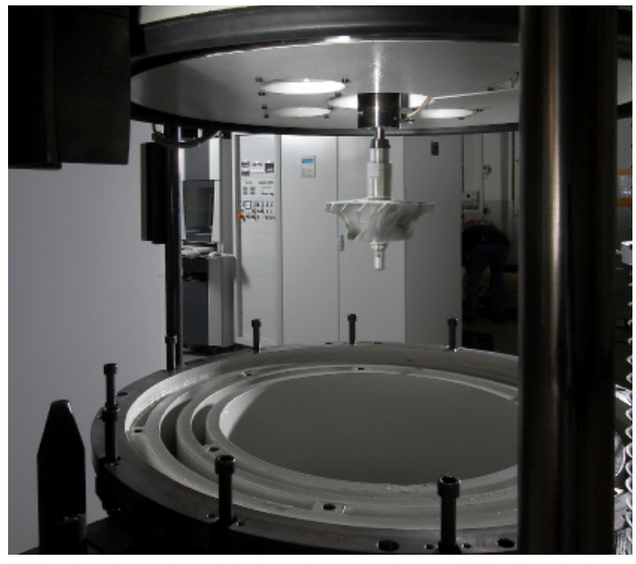
Range of application

The spin test systems of the BI 2 - BI 4 series are used to test rotating components at high speed.
They are proven test stands which are essential for the development, production and quality assurance of turbochargers, turbines, axial and radial compressors, fans, smaller HSK tools - sanding tools or electro-armatures.
Main areas of application are:
Improve the strength of material by prestressing beyond its yield point,
Overspeed testing with rotations above the operating speed within the scope of quality assurance,
Intentional burst test to determine the strength of the test specimen for spot checking or research and developemnt,
Creep test (LCF tests) for the creation of Wöhler curves.

Structure

A spin test system of the series BI 2 - BI 4 consists of the basic test stand with drive and vacuum-chamber with integrated burst protection. All measuring, safety and power electronics are housed in separate cabinets.
The complete mechanical drive of the overspeed test stand is mounted on the chamber lid. A three-phase servo motor with frequency converter is used. This motor drives the mechanical drive through a low-vibration flat belt. To cover a wider rotor spectrum with a large weight/speed range, it is possible to use several mechanical drives. Fast interchanging of the individual drive units is possible by the use of quick disconnect couplings on all the oil lines.

Spin test system with cryo service for low-temperature tests



High safety through modular bursting protection and lid locking device

Safety

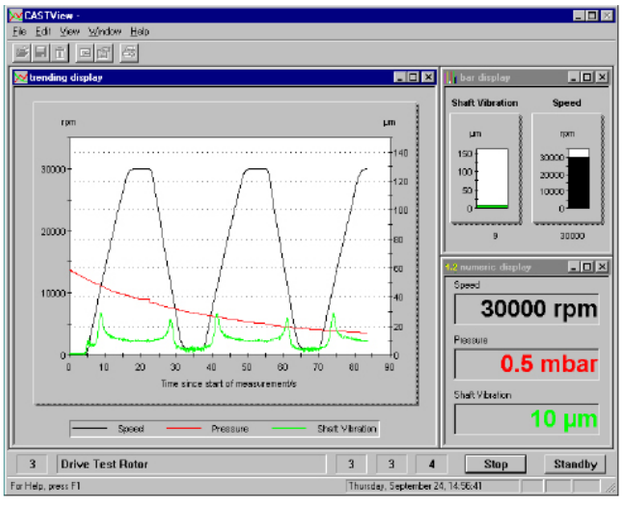
The spin test system's safety features are exceptional, integrating mechanical safety components such as burst protection, and an effective lid locking device. The system is equipped with electronic monitoring and fault diagnostics. These, permanently monitor all relevant data e.g. speed, pressure, vibrations and temperature during the test run and compare these to pre-set values. When the limit values are exceeded safety precautions are taken. For example a special shock sensor monitors the test run in order to initiate a braking process with maximum torque immediately when a burst is detected.

Measuring and control software CAST

CAST is the central system that records, analyzes and monitors all measured data. It supports analogue measuring channels, e.g. for speed, shaft vibration, pressure and temperature. In addition, CAST provides the fully automatic process control of spin tests and test cycles.

CASTView offers convenient visualization of all the measured values in online and offline operation, and allows for the preperation of spin test protocols.

Operating panel with CAST



Convenient visualization of all measured values of a test using CAST

Important data at a glance

Design size		BI 2 U	BI 3 U	BI 4 U
Rotor weight, max.	lbs [kg]	110 [50]	880 [400]	1760 [800]
Rotor diameter (typ.) *	in [mm]	19.7 [500]	27.9 [710]	39.3 [1000]
Rotor length (typ.) *	in [mm]	12.4 [315]	17.7 [450]	24.8 [630]
Mechanical drive: *				
22lbs; 250,000rpm [10 kg; 250.000 min^{-1}]		X	X	X
110lbs; 31,000rpm [50 kg; 31.500 min^{-1}]		X	X	X
110lbs; 125,000rpm [50 kg; 125.000 min^{-1}]		X	X	X
880lbs; 25,000rpm [400 kg; 25.000 min^{-1}]		X	X	
880lbs; 63,000rpm [400 kg; 63.000 min^{-1}]		X	X	
2,750lbs; 12,500rpm [1.250 kg; 12.500 min^{-1}]				X
2,750lbs; 40,000rpm [1.250 kg; 40.000 min^{-1}]				X
Drive power (typ.) **	HP [kW]	40 [30]	75 [55]	100 [75]
Options:		- Heating system - Cryo system - Telemetry system - High Speed Video System - Rotor groth measurement - Unbalance measurement - Design and production of rotor tooling		

* Special diameter, lengths, speeds and weights possible on request

** Special drive capacities upon request

SCHENCK

Balancing and
Diagnostic Systems

SCHENCK Trebel Corporation
535 Acorn Street
Deer Park, NY 11729

T: (631) 242-4010
F: (631) 242-4147

www.schenck-usa.com
sales@schenck-usa.com

The DÜRR Group

SCHENCK

Balancing and
Diagnostic Systems

SCHENCK RoTec GmbH
Landwehrstraße 55
D-64293 Darmstadt

T: +49 (0) 61 51 - 32 23 11
F: +49 (0) 61 51 - 32 23 15

www.schenck-rotec.com
rotec@schenck.net

The DÜRR Group