

RQA 300/ITS

Rotor Quality Analyzer



Introduction

The **RQA 300 ITS Rotor Quality Analyzer** is a computer controlled testing system applying most advanced evaluation technique for rotor quality control in an industrial environment. This unique desktop test system is especially designed for quality control of medium and large size rotors in manufacturing and maintenance of squirrel cage induction motors.

Loading of the rotor is done manually. The test is started by pressing the START button. The test cycle as well as evaluation of the rotor and storing data for statistics is done fully automatically. The Good/Bad evaluation is based on pre-programmed tolerances stored in the Master Parameter file of the rotor type being tested.

The test procedure is enabling detection of rotor problems at an early stage. Beside problems in individual rotor bars like interrupted bars, porosity or air enclosures, deviation of the bar angle and poor oxidation of the aluminum bars may be detected.

Max. dimensions of rotors to be tested: Outside-Ø 50-300mm, stack height 50-300mm. Max. Weight 35 kg.

Features

- Approved testing technology for die cast rotors.
- Fully automatic test and evaluation based on pre-programmed tolerances.
- For testing of a wide range of rotor sizes with no need of special tooling.
- For testing of rotors with and without shaft, thus preventing additional product cost in case of poor rotor quality.
- Quick and easy adaption to different rotor type and sizes.
- Cycle time approx. 6 sec. enables 100% test of production lots.
- Unlimited storage for Master Parameter Files for different rotors.
- Possibility to connect to LAN system for saving data and statistical evaluation.
- RQA Win Software for Windows 98, 2000 or XP with extensive package for statistics and zoom.

RQA 300/ITS

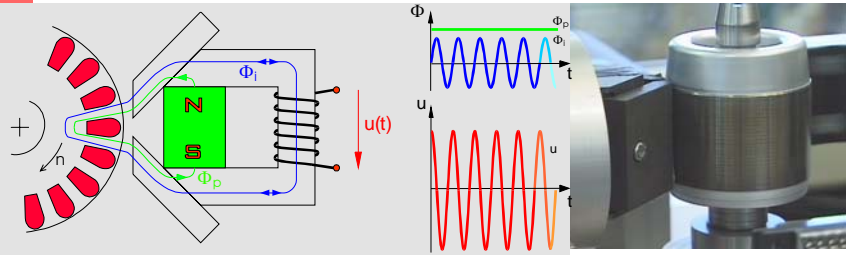
Universal Induktive Rotor Tester

- For testing of rotors**
- of different size
 - with or without shaft

Test Methodology / Software

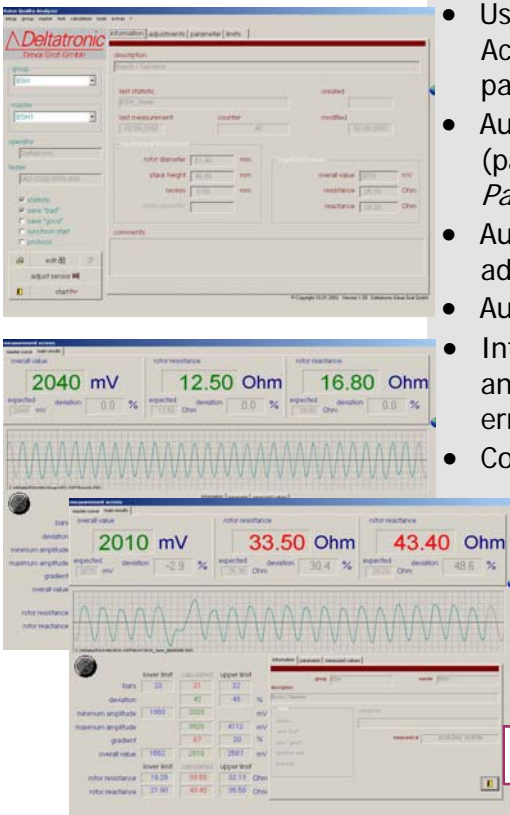
Inductive Measurement

The inductive measurement is realized by spinning the rotor in close proximity to the inductive sensor. As the bars move through the magnetic field a current is induced in the rotor bars. The resulting sinusoidal waveform, in which each complete cycle represents one rotor bar, is evaluated according to a predetermined set of tolerances in an examination profile.



Basic Principle of Inductive Test

RQA Win Software



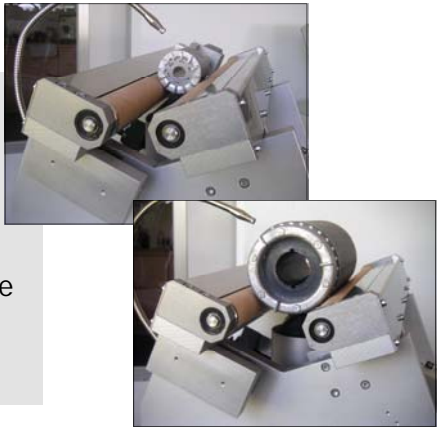
- User friendly menu-driven windows based software for automatic Accept/Reject evaluation of rotors according to user selected parameter tolerance levels.
- Automatic set-up of all measurement and evaluation procedures (parameter tolerances) via the selection and retrieval of the *Master Parameter File* (reference rotor),
- Automatic learn feature to establish new *Master Parameter Files* for additional type of rotors to be tested.
- Automatic fault classification into different error types
- Integrated counter for the total number of tested and failed rotors, and a complete record of the specific type and frequency of fault errors is recorded.
- Complete statistics package to facilitate a complete and thorough analysis of both rotor quality and productions capability.
- Interactive parameter tolerance functions via a "what if" approach in combination with the present and recommended C_p and C_{pk} values.
- Zoom function for rejected rotors automatically records all measurement results including the inductive waveform for more thorough analysis of the fault mechanism.

Measuring Screen

Flexible Teststation

The test station of the RQA 300/ITS Rotor Quality Analyzers with it's unique design is very flexible for testing different rotors. Special features are f.e.

- Testing of rotors without any special and expensive tooling
- Testing of rotors with no shaft or already equipped with shaft
- Easy adaption to different rotor OD by precise adjusting facility for the distance between drive and support rollers.



RQA ITS/BAL - Special applications

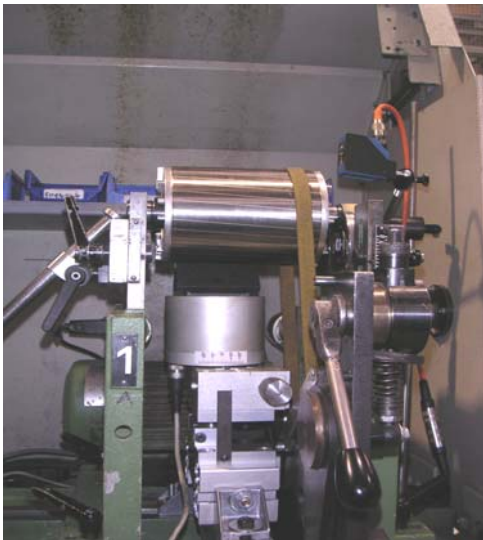
In most manufacturing processes rotors are being put on a lathe for finishing of the outside diameter and/or on a balancing machine for mechanical balancing.

Therefore the technology of this advanced inductive test system is made available for combination with such equipment. Thus no additional mechanical test station will be available reducing cost of the tester and handling of the rotor.

The special Version RQA ITS/BAL Rotor Quality Analyzer is ideally suited for combination with the process of finishing or balancing the rotor. It is consisting of the advanced measuring and control unit and the universal inductive sensor with all adjustment possibilities as in the original tester.

When the rotor is loaded on the lathe or balancing machine, testing will be done in second - spending no additional time in the component. Thus 100% quality control may be integrated in the process with relatively low investment.

Dimensions of rotors to be tested depends primarily on the production equipment available. Some dimensional limitations do exist for rotor core designs with closed slots.

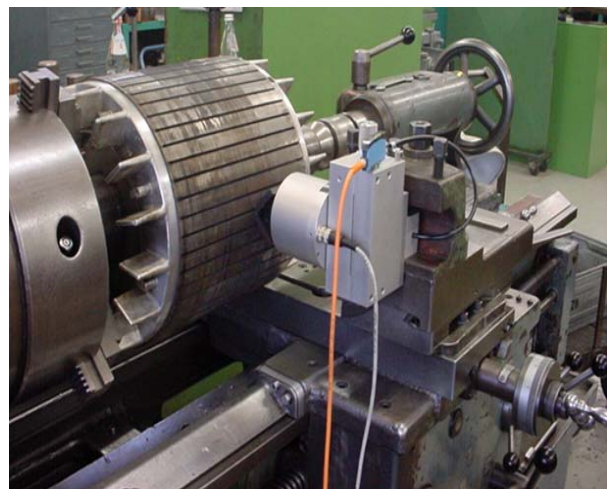


Combination with balancing

Inductive sensor mounted to a balancing machine. There are users of such equipment having installed multiple stations after first positive experience.

Combination with finishing

Inductive sensor mounted on the tool holder of a lathe.



Technical Data

Rotor Quality Analyzer	RQA 300/ITS
Maximum rotor dimensions	outside Ø 50 - 300mm, rotor length 50 - 300mm, rotor with or without shaft Max. Rotor weight 35 kg
Loading of test rotors	Manually
Testing cycle / time	Fully automatic / minimum 5.5 seconds plus loading
Testing methods	Inductive test for rotor bar analysis
Industrial PC	Industrial PC min. 2Ghz, HD 100GB, Floppy Disk, CD-RW drive, Optically Isolated I/O Board, 15" TFT Color monitor
Automatic controls by	by Industrial PC
Rotor Test Station	Desktop model, test rotor on support roller
Rotor rotation for test by	Speed controlled stepper motor drive directly to one support roller
Synchrone start feature	Adjustable optical sensor for physical identification of defective rotor bars
Induktive Sensor	With exchangable Pole Shoes to match different rotor stack length, adjustable angle of magnetic field in steps of 0.1°, adjustable vertical position and adjustable gap towards the test rotor.
Operator Security	Emergency STOP button
Electrical Supply	Single phase 230V, 50/60 Hz or 115V, 50/60Hz to be specified with purchase order
Dimensions of Test Station	width 580mm, depth 400mm, height 305mm
Dimensions of Measuring Unit	width 450mm, depth 530mm, height 170mm with closed LCD-display
Weight approx.	net 60 kg, gross 85 kg



RQA 300/ITS Measuring- and Control Unit

With integrated industrial PC with Harddik, Floppy Disk, CD-ROM Drive, I/O Moduls as well as Controller for direct drive stepper motor for rotating the rotor and components for Supply and Protection .

With foldout Color TFT Monitor.

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