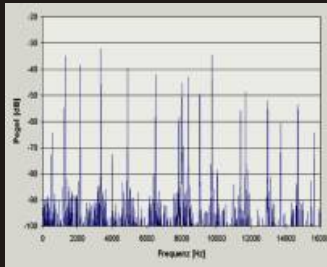
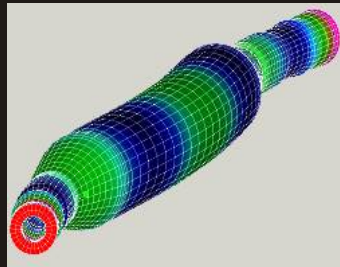


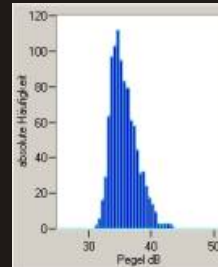
Resonances



Vibrations



Prozess Checking



Diagnose



## Acoustic Material Testing

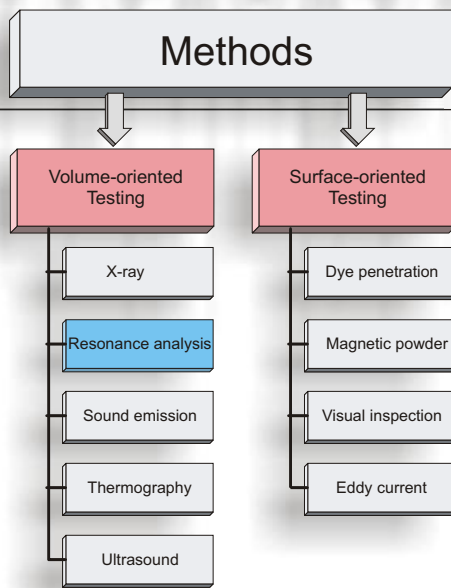


## Requirements

Quality control of **material properties of components** using conventional test methods is often expensive and maintenance intensive. Furthermore, several different test methods, and sometimes destructive test methods, are necessary to detect various types of flaws, such as cracks, inclusions, micro-structural changes or geometry faults.

**SR20AT** offers a fast, **non-destructive** and **environmentally friendly** solution.

The acoustic methods can also be used for **process checking** of joining and bonding processes. The rapid processing of the measured values means the availability of the results keeps pace with the production cycle.



## Test Principle

The basic principle of quality testing by SR20AT is the analysis of the acoustic properties of the test object. The sounding test is no doubt one of the oldest non-destructive test methods (NDT).

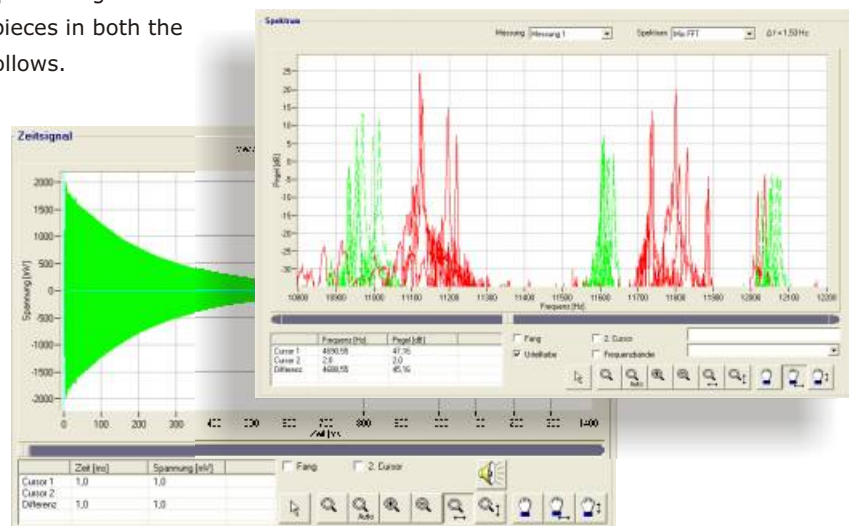
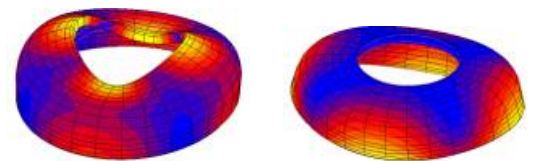
Resonance analysis is a **volumetric** test method and, in contrast to surface-oriented methods, considers the complete test object.

## Test Method

The workpiece is vibrated using external pulses or continuous excitation. These vibrations can assume different characters. Defects in the workpiece change the vibrations.

The SR20AT toolkit offers a complete range of methods for assessing the workpieces in both the frequency and time ranges, as follows.

- Frequency list
- Frequency spreading
- Band level
- Decay characteristics
- Digital filters
- etc.





## SR20AT ACOUSTIC TESTING



### Integration

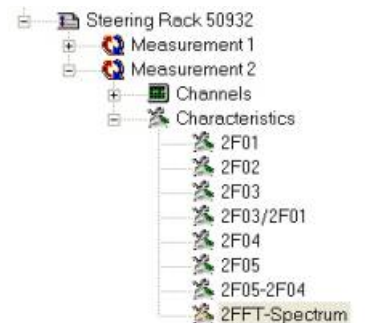
The SR20AT can be easily integrated into existing automatic systems using standard interfaces.

- Fast linking to the process
- Minimum installation cost due to bus technology
- Communication with third party providers

### Functional Description

The SR20AT operates on the basis of the product description. A test consists of one or more measurements with different features and classifiers. An overall assessment is made of all the features. The scope of the test can be parametered as required using the planning facility:

- Definition of as many products as required
- Subdivision of the test steps into measurements
- Planning of features as required from pre-defined processes
- Classification of features
- Threshold value training



### Applications

The SR20AT is used for random sampling or 100% testing during production. The system operates completely automatically, to monitor production and processes or can be used in manually equipped test stations.

The SR20AT is, for example, used to detect the following:

- Cracks in forged synchro-rings
- Chill depth on camshafts
- Cracks and microstructure of clutch pedals
- Microstructure, cracks and cavities in brake callipers of nodular cast iron
- Quality of brazed joints in pinion cages
- Cracks in sintered metal and aluminium parts
- Monitoring the natural frequency of e.g. brake disks
- Testing for cracks in ceramics and clay
- etc.

## The basic package

The modules of the basic equipment are capable of providing complete solutions.



### Measuring procedure

After a manual start, the SR20AT measures all the channels and provides an assessment of the workpiece. The result is shown in different graphic windows.



### Product

Describe your product with all features and quality limits.



### User management

The user management enables you to set up users and groups. For systems which start up automatically, a standard user can be set. This is automatically activated during the system start.

## Expansion modules

For further information on expansion modules, please ask for our descriptive literature.



### Automatic mode

In automatic mode, an SPC or control desk controls the product selection and test sequence. The result of the assessment is available at the process interface.



### Archive

All measured data and assessments are stored in the archive together with the quality data used. This ensures complete documentation.



### Statistics

Comprehensive evaluation facilities for assessment of the quality of the product and process.

### Follow-up processing

You can test a previous measurement again using modified parameters to analyse the result and optimise the setting.



### Language modules

Various language modules are available for Western Europe, Eastern Europe and Asia.

## System Versions

We offer adequate system variations for various customer requirements:

- SR20AT/mobile:** mobile test system
- SR20AT/lab:** laboratory test system
- SR20AT/manual:** manual testing with fixture
- SR20AT/automation:** inline test bench

Please contact us to obtain detailed documents.



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