



SAAB

VIBRATION ANALYSIS IN PRODUCTION

SYSTEM SOLUTIONS AND SERVICES



NVH AND SAAB MEDAV TECHNOLOGIES

MEDAV NVH – Noise, Vibration, Harshness – focuses on industrial tasks for quality testing and machine monitoring. The highly qualified and experienced engineers of our department NVH support customers for vibration analysis with a complete offer of system technology and service.

MEDAV is a German company with approximately 85 employees, which was founded in 1982. The head office of the company is in Uttenreuth at Erlangen-Nuremberg, since 2000 there is a subsidiary in Ilmenau, Thüringen. There are around 70 engineers, scientists and certified technicians working on tasks of digital signal processing, pattern recognition as well as IT-solutions. We introduce our know-how in solutions for the following application areas:

- industrial vibration measurement and quality testing technology
- language recognition
- radio communication

SMT NVH CUSTOMERS

- AREVA
- Batavia Transmissions (FORD)
- Behr
- BMW
- Bosch
- Daimler
- Daimler commercial vehicles
- FZG
- GKN
- GM
- Honsel
- JW Froehlich
- MAN
- OPEL
- Porsche
- Punch Powertrain
- Schaeffler-INA
- Siemens
- Siemens VDO HVAC
- Sulzer
- Skoda
- ThyssenKrupp-Krause
- ThyssenKrupp-Presta
- Toyota
- Visteon
- VW
- ZF Steering
- ZF Transmissions
- ZF Lemförde

ANOVIS

ANOVISTM is our standard platform for End-of-Line (EoL) test of rotating machines. It is used for signal recording, signal analysis, and test bench control, for installation of test programs, for mobile vehicle measurements and for early recognition of damage on endurance test bench. ANOVISTM can be integrated in computer networks. Automated and manual measurement and test operation are possible, self-learning methods are available.

The objective of testing engines and gearboxes in production is the improvement of plant specific quality standard. The test is performed objectively. The quality improvement is perceptible. Rationalization and cost savings are realizable as a result of increased automation, early detection of failures, less reworking and less number of customer complaints.

Our methods allow the

- recognition of audible and non-audible conspicuousness and defects
- extended error recognition (against the standard measurement process)
- increase of process security of total checking
- fault diagnosis in sense of an identification of damaged components and assembly errors

IMPACT / CLICKCHECK

IMPACT controls fast working production machines like e.g. presses, saws and punches. For this technologies of acoustic emission analysis are used, in order to purposefully assess machine noise and vibrations.

ClickCheck checks automatically executed plug and socket connection and assembly processes as well as untypical noises arising at the time of material processing of components. Typical snap noises ("click") or breakage notification can be recorded acoustically and assessed for quality.

CRACKMASTER™

CrackMaster™ is our platform for component testing by acoustic resonance inspection. Vibration signals (air and structure borne noise) include information about flaws in components. Cracks especially lead to changes of resonance frequencies (natural frequencies).

Vibration analysis based methods offer important advantages against competing techniques, e.g. that can be executed fastly, objectively, reproducibly and automatically, it ignores surface structures ("scratches"), considers interior structure faults, follows mainly customer relevant product criteria like tensile strength, is relatively low priced. In a cost-free basic investigation we get to know the vibration behaviour of the test object, in a process accompanying series of measurements process influences are considered. The advantages of our solution are:

- Installation with (unassessed) series parts, which predominantly are good-parts.
Extensive pre-sorting of good- and bad parts is omitted.
- Automatic adaption of abnormality limits to process drift.



SAAB

WE OFFER SPECIAL SOLUTIONS FOR FOLLOWING (LINE INTEGRATED) TEST TASKS

**Vibration analysis
(NVH Test)**

for testing of

- combustion engines
- transmissions
- electric motors
- white goods
- pumps
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for early detection of damage

- of endurance run test bench of engines, transmissions
- and especially for pitting recognition of bracing test benches.

**Component test
(Crack test)**

**on the basis of acoustic resonance inspection,
e.g. for:**

- the sinter industry (powder metallurgy)
- press lines (car body parts)
- forging
- foundries
- ceramic industry

Acoustic emission analysis

**for recognition of cracks during the completion process,
e.g.:**

- (hydroforming) presses
- joining machines
- punches

Machine control

e.g. to endurance test benches for:

- early detection of damage
- condition based maintenance