



# **Sphere of activity AURA a.s.**



**The leader on the vibration diagnostics market**



**AURA a.s.**  
Milevsko

- ⇒ **Technical diagnostics**
- ⇒ **Control systems**
- ⇒ **Remote supervision**

A brief summary of the activities of the AURA joint stock company, where the objective is to introduce the areas in which the company conducts business in, and where the company offers its clients optimal solutions at optimal costs with maximum client benefit. Such an approach of the AURA company is possible due to its strengths in the form of a combination of its own development, its own production and control systems with remote administration completed by our own experts. The company can benefit from its wide ranging experience which it manages to direct towards the specific problem of the client and offers a comprehensive solution.

During the period of its existence, the company developed systems and devices which are applied not only to the traditional areas of technical diagnostics, but also to those areas where the application of a smaller company is less usual. Today, the technical maturity of the offer can be confirmed by references from the oil industry or deep mines with Ex explosive environments, from the area of the air industry where the AURA company won the international tender of the Ministry of Defence of the Czech Republic, pharmacy and many other areas. The high level is also confirmed by the application in areas where it is necessary to take into consideration the most important safety factor; the human life. AURA a.s. is a holder of a whole series of certificates, such as ISO 9001, CQS, IQ-net, ATEX (authorizing the production of products for environments with the risk of explosion), certificates of the Ministry of Defence authorizing to produce military and air technology and many others.

The company can also be proud of its successful innovational activity. Immediately from its beginning, the company began as the first subject with a comprehensive evaluation of the status of machines and started the worldwide trend that is valid up to the present time. We developed unique sensors which enable to monitor, by means of one sensor, the status of the bearings of the machine and, at the same time, to diagnose vibrations. Our systems passed long-term loading tests for operation up to 250 °C (applicable, e.g. for the fulfilment of European standards for road tunnel safety). We have the solution for the very often but omitted effect of the labile status of axial ventilators which participates in a high percentage of the damage / destruction of ventilators.

The successful activity of the company is expanded on the basis of the company strategy directed towards the client. To meet the demands of clients with specific problems is exactly what we would expect in the role of the demanding party which is offered in the opposite role. We managed well to resolve specific tasks because the universal solution made the offer more expensive due to equipping which the client will never use. The financial saving of the client is the most important for us, together with the high technical quality. The expansion of the offer in the mentioned manner became for the company a important competitive advantage. We manage to satisfy clients from almost all industrial areas. We react solidly, and address the issue in an economic manner. We consider the satisfaction of the client as the basic premise for the further development of the company.

**Contact us; see what we have to offer.**

## Key activities of the AURA a.s. company

- production of active and passive sensors for vibrating diagnostics (including use at high temperatures, in explosive environments or under water)
- production of converters for signals and monitors for the operation of machines (vibrations, temperatures, pressures, etc., analogue and digital).
- diagnostics for the status of bearings – wearing of rolling bearings
- vibration diagnostics for rotary machines
- diagnostics for the statuses of ventilators
- measuring instruments (manual, portable, stationary, laboratory)
- industrial and information control systems
- production of communication adapters for the conversion of various types of industrial protocols.
- systems for remote administration, service and communication
- services (consulting, assistance during research and development, client solution, service and repairs, calibration, design)

## Applications

### ***Ventilators for industrial operating units, tunnels, deep mines, cooling towers and underground:***

- ❖ evaluation of the status of ventilators
- ❖ diagnostics of the status of bearings
- ❖ diagnostics of vibrations
- ❖ measuring of temperatures
- ❖ measuring and evaluation of labile pressure statuses of ventilators
- ❖ remote administration and control
- ❖ long-term resistance for thermal loading of 250°C
- ❖ possibility of mounting by elements for explosive environments



### ***Water power plants:***

- ❖ diagnostics of the status of bearings
- ❖ diagnostics of vibrations
- ❖ measuring of temperatures
- ❖ measuring and evaluation of extraordinary pressure statuses of turbines
- ❖ diagnostics of gear boxes
- ❖ diagnostics of cavitation
- ❖ remote administration and control systems



### ***Wind power plants:***

- ❖ diagnostics of the status of bearings
- ❖ diagnostics of vibrations
- ❖ measuring of temperatures
- ❖ VE control systems (PLC, information systems)
- ❖ diagnostics of gearings, declination of nacelles



### ***Compressors and compressor stations:***

- ❖ evaluation of the statuses of compressors
- ❖ diagnostics of the status of bearings
- ❖ diagnostics of vibrations
- ❖ measurement of temperatures and pressures
- ❖ measuring and evaluation of labile pressure statuses of compressors
- ❖ control of the operation of compressors (PLC, information system)
- ❖ remote administration, storage of measured data
- ❖ long-term resistance for thermal loading of 250°C
- ❖ possibility of mounting by elements for explosive environments



### ***Gas and steam turbines:***

- ❖ evaluation of the status of turbines
- ❖ diagnostics of the status of bearings
- ❖ diagnostics of vibrations
- ❖ measurement of temperatures and pressures
- ❖ measuring and evaluation of labile pressure statuses of turbines
- ❖ PLC and operator's workplace
- ❖ remote administration and control
- ❖ possibility of mounting by elements for explosive environments



### ***Chemical industry:***

- ❖ diagnostics of the status of bearings (e.g. for centrifuges)
- ❖ diagnostics of vibrations
- ❖ control systems, including own diagnostic elements
- ❖ PLC and operator's workplace
- ❖ remote administration and control



### ***Electrostatic precipitator for heating power plants, heating plants, combustion plants:***

- ❖ control systems
- ❖ diagnostic systems for the composition of burnt gases, temperatures and pressures
- ❖ operator's workplace with visualization and PLC automated machines
- ❖ remote administration and control





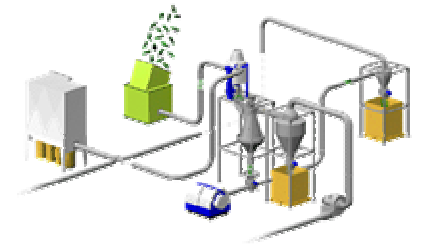
### ***Vibrating conveyers:***

- ❖ setting of the optimal values of vibrations for the transport
- ❖ monitoring of the movement of transported materials (without breaking the wall of the conveyer)
- ❖ control systems
- ❖ operator's workplace
- ❖ remote administration and control



### ***Pneumatic transport:***

- ❖ monitoring of the movement of transported materials (without breaking the wall of the conveyer)
- ❖ operator's workplace
- ❖ remote administration and control systems



### ***Vibrating forming:***

- ❖ measurement and control of the optimising of vibrations diagnostics of the status of bearings
- ❖ diagnostics of vibrations
- ❖ control systems
- ❖ PLC and operator's workplace
- ❖ remote administration and control



### ***Glass forming machines:***

- ❖ measurement and optimising of the activities of vibrating screens
- ❖ diagnostics of the status of bearings
- ❖ diagnostics of vibrations
- ❖ control systems
- ❖ PLC and operator's workplace
- ❖ remote administration and control

### ***Automotive industry:***

- ❖ measuring equipment for measuring the damage to valve gates
- ❖ measuring of the quality of tooling, wearing and assembly of toothed gear wheels
- ❖ testing equipment for the measurement of engine vibrations



### ***Aviation industry:***

- ❖ diagnostics for air jet engines
- ❖ diagnostics of the status of bearings
- ❖ diagnostics of vibrations
- ❖ fulfilling conditions for use in military aviation



### ***Surface mines:***

- ❖ measuring and regulation of the setting belts for mining machines
- ❖ measurement of the declination of the yard machines
- ❖ diagnostics for conveyers of mined material



### ***Deep mines:***

- ❖ comprehensive diagnostics for mining towers
- ❖ ventilation and ventilators
- ❖ diagnostics for conveyers of mined material



### ***Crude oil mines:***

- ❖ galvanic-separated sensors for the measurement of vibrations for explosive environments
- ❖ control technology of pumps (including sensors) for automated maintenance-free crude oil pumping stations
- ❖ diagnostics of the status of bearings
- ❖ diagnostics of vibrations
- ❖ PLC and operator's workplace
- ❖ remote administration and control



### ***Metallurgy and heavy industry:***

- ❖ control systems for dust removing
- ❖ control systems, including own diagnostic elements
- ❖ PLC and operator's workplace
- ❖ remote administration and control



### ***Pharmaceutical industry:***

- ❖ control systems for operating units and lines, mutual linkage, mutual communication
- ❖ diagnostics of centrifuges
- ❖ PLC and operator's workplace
- ❖ remote administration and control



### ***Research projects:***

- ❖ vibrating diagnostics
- ❖ diagnostics of ore deposits
- ❖ labile statuses of ventilators, turbines and compressors
- ❖ aero-dynamic tunnels
- ❖ measurement of playground surfaces
- ❖ measurement of road surfaces
- ❖ diagnostics of special tooling machines

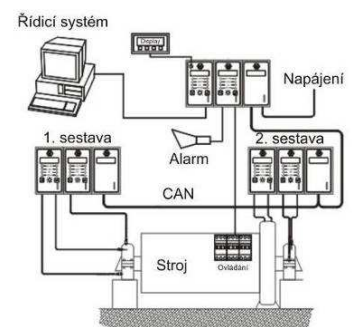
## Measuring instruments and projects for testing laboratories:

- ❖ manual for the measurement of vibrations and diagnostics of the status of bearings with the collection and administration of data
- ❖ measuring “recorder” for the collection of data and consequent evaluation – e.g. FFT analysis
- ❖ mobile exchanges for the measurement and diagnostics of vibrations, status of bearings, temperatures, pressures, labile statuses and other operating parameters
- ❖ stable testing laboratories and equipment for the measurement and diagnostics of vibrations, status of bearings, temperatures, pressures, labile statuses and other operating parameters
- ❖ exact laboratory devices, including sensors for measurement, calibration, amplifiers and charge generators
- ❖ mutual connections and communication between the individual measuring equipment of testing laboratories
- ❖ operator’s workplaces for testing laboratories
- ❖ remote administration and control of testing laboratories



## Modular systems:

The latest generation of monitors for operation of AURA a.s. machines have a modular character. Each module has its own processor and optional input and output channels. Modules are mounted on a DIN bar and are mutually connected through the bus-bar with CAN standard. They can be used as diagnostic, measuring and control systems where on the input it is possible to supply a signal from the sensor for any physical values. According to the required function (measuring, diagnostic, control) and the number of input signals, the necessary number of modules are interconnected. The advantage of this system is mainly the high variability, as well as the possibility to create distribution systems and to transfer data through inside bus-bar communication or remotely into networks (Internet, GSM, etc.). All these modules are constructed as “Plug and Play”, so in the case of defects, it is sufficient to replace the module with a new one which will record from data stored in other modules, the original values of the settings of the old module. During the installation of the system it is not necessary to prepare dozens of cables from each sensor or regulator into the operator’s workplace, but it is sufficient to use one communication line (cable or wireless) into the set of modules. This will cause the processing of each signal by the processor of the module; the central processor of the regulator the PLC or the operator’s workplace is not loaded, so it works in the real regime.



## Industrial control systems:

AURA a.s. control systems are constructed as "tailored" for the client to achieve not the only technical, but also economically, the most effective client solution. The important factor is our ability to create software for the control and processing of information in the industry and production. We see our future and the future of our clients in the linkage of measurement and information technology.

### **Remote administration and control:**

The worldwide trend is the transfer to maintenance-free systems. AURA a.s. systems enable to transfer a signal from the monitor into the operator's workplace, or through a PLC and from there to defined users. Each user may have various set rights, where the data from the process will be displayed for them. It is possible to transfer through the Internet, GSM or a local network, through a telephone line, optical cables or by air. The display of necessary data is by means of HTML or SW CITECT protocols. The communication route is bi-directional, so it is possible to perform remote setting, modifications to the system or to regulate. The advantages are based on the fact that there is a decrease in the costs for operation, the necessary data is available from distant workplaces (supervising body, service organisation, supplier of technology, distant central operator's workplace, etc.), decreased costs for service, maintenance because the service employee before arrival, knows exactly what is to be resolved, it is possible to resolve many situations and interventions without the presence of a technician at the equipment, exact data is available for the process in the case of an accident or claim, etc.

### **Special equipment:**

ultrasound emission sensor UES 600 for the evaluation of acoustic emissions which is used in the diagnostics of electric charges, escape of vapours and gases, movement of loose materials, cavitation of water turbines, etc.

testing equipment C300 simulating the human head for measurement of the hardness of sports playgrounds, testing of helmets and children's riding-horses.

testing equipment C8 for measurement of the vibrations of cars for testing of the quality of roads

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