

*Innovation Starts here*



[www.elvac.eu](http://www.elvac.eu)

MACHINE CONSTRUCTION

PRODUCTION OF SWITCHBOARDS

AUTOMATION

SOFTWARE

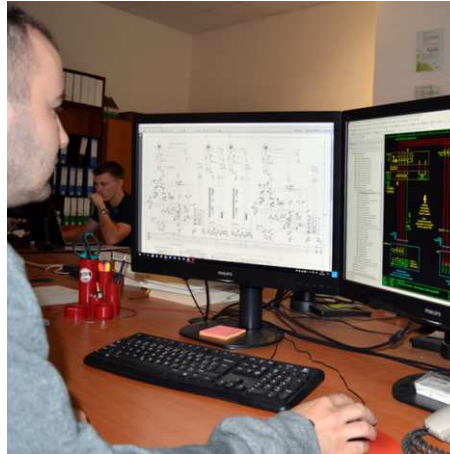
ECOLOGICAL SOLUTIONS

**CATALOGUE OF SOLUTIONS**

# MECHATRONICS

## PROVIDED SERVICES

- Automation design and engineering
- System integration
- Single-purpose machines and production lines
- Robotic applications
- Control systems
- Visualization and SCADA Systems
- Measurement and Quality Control
- Optimization and modernization
- Safety systems
- Education and Training
- Maintenance and service
- Documentation and Certification
- After-sales support



## AREAS OF INTEREST

Automotive industry  
Energy and electromechanics  
Chemical industry  
Metallurgy and engineering  
Theater and stage technology



Modernization of control systems



Handling and transport of products

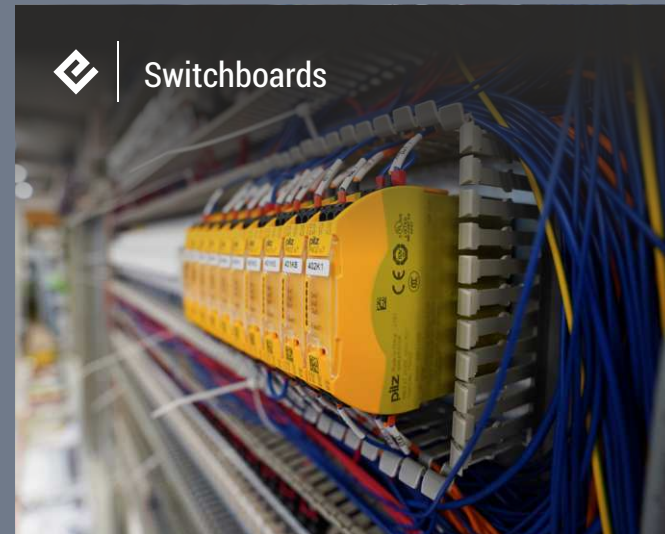




Machine vision



Quality testers



Switchboards



Robotics



Single-purpose machines and assembly lines



Electromobility



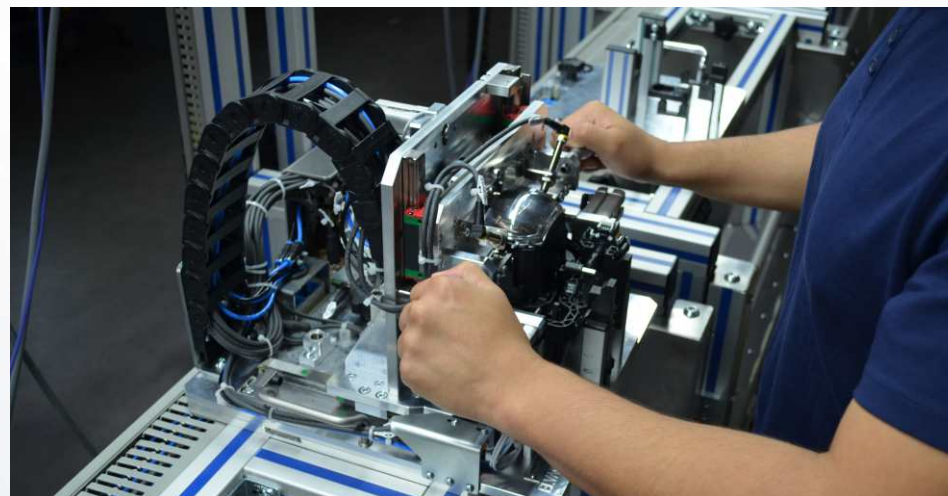
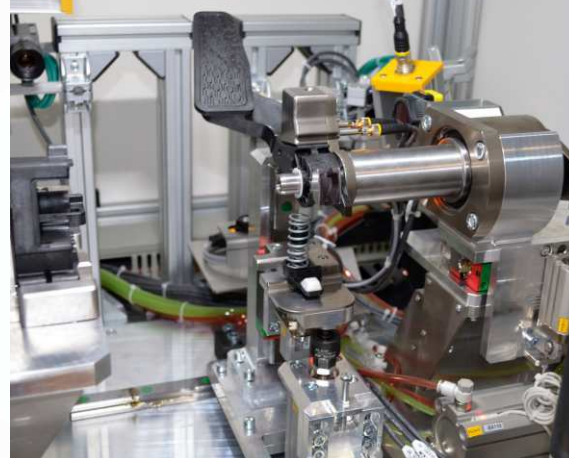
Photovoltaics

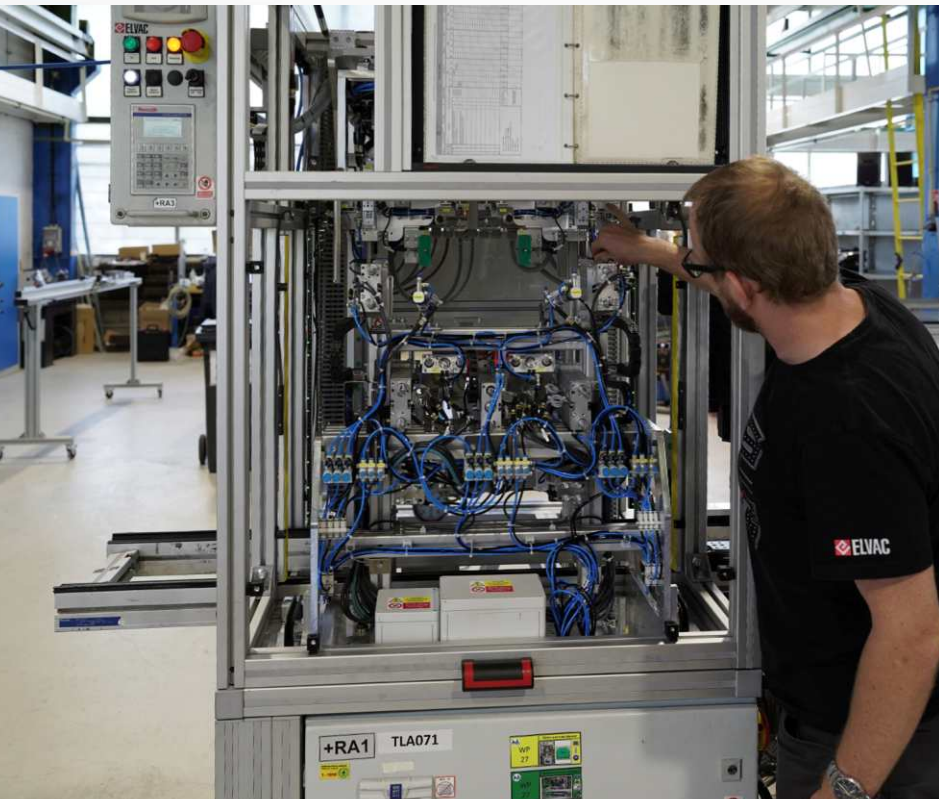




## Pre-assembly and assembly workplace

- Design of unique mounting fixtures
- Meeting the safety requirements of the automotive industry
- High workplace ergonomics
- PLC control, camera controls
- Modularity/universality, variability
- Easy to change production recipes
- Traceability and production data collection
- Control of the assembly process by the control system
- Easy operation
- High line clock speed





# MECHATRONICS

## Single-purpose machines

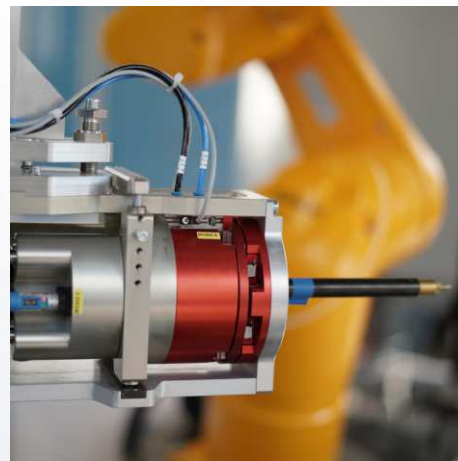
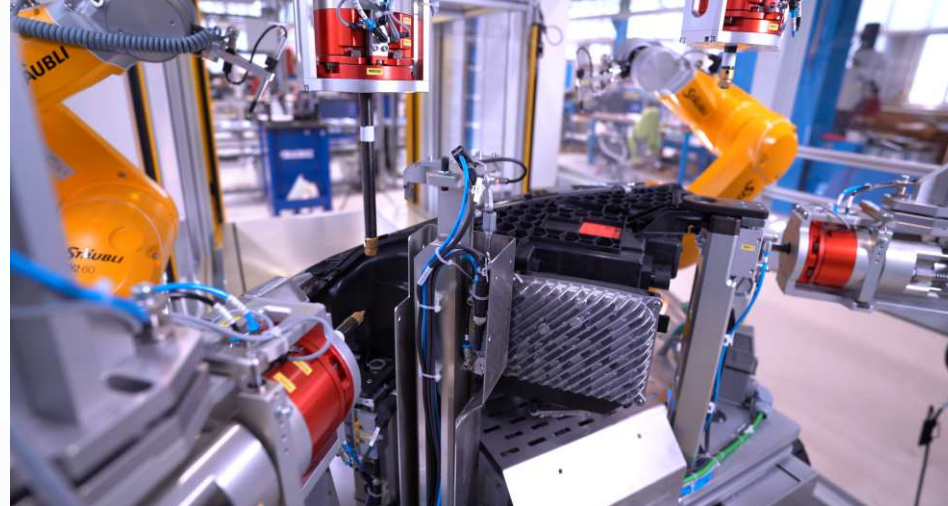
- Development, design and manufacture of single-purpose machines for mass and serial production
- Leak testers, product completeness, EOL
- Product handling, conveyors
- Continuous ILM measurement
- Product/process quality control
- Laser/engraved product description

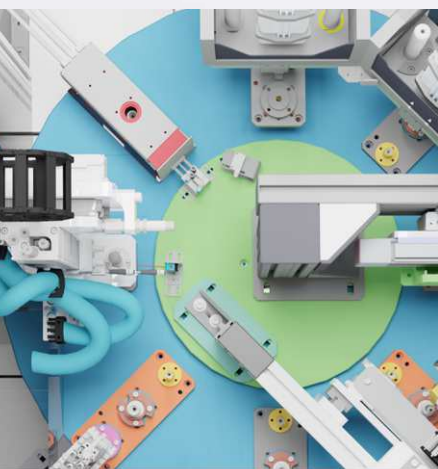
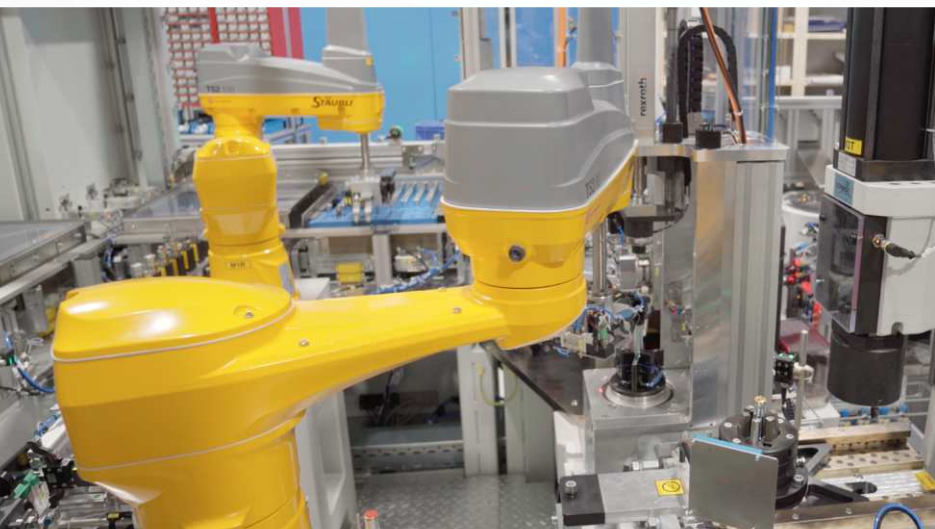
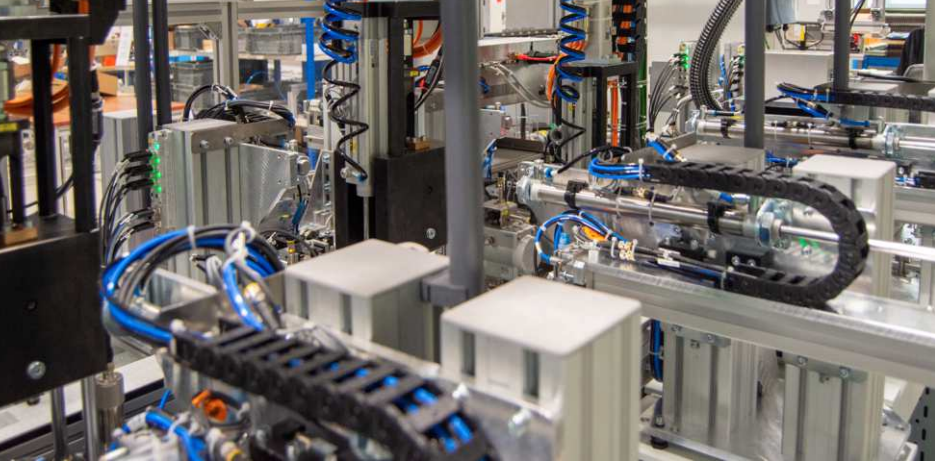




## In Line Measurement - ILM

- Automatically guided screwdrivers without camera system
- Automatic calibration of robots and measuring tool
- 100% production measurement within a tolerance of  $\pm 0.1\text{mm}$
- High measuring and adjustment speed
- Robust measuring machine solution for light industry
- Easy implementation of new products thanks to interchangeable fixtures





# MECHATRONICS



## Automatic production lines

- Design of the optimal solution based on the technologist analysis
- Custom design and manufacture of all line components
- Use of digital twin technology to increase the efficiency of line deployment
- Fully automated control
- High reliability of the solution thanks to proven processes
- High quality warranty and after-sales service



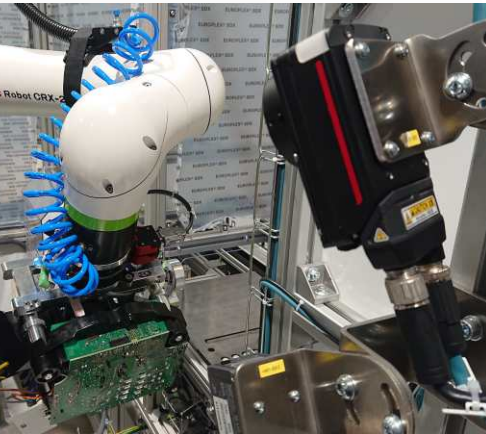
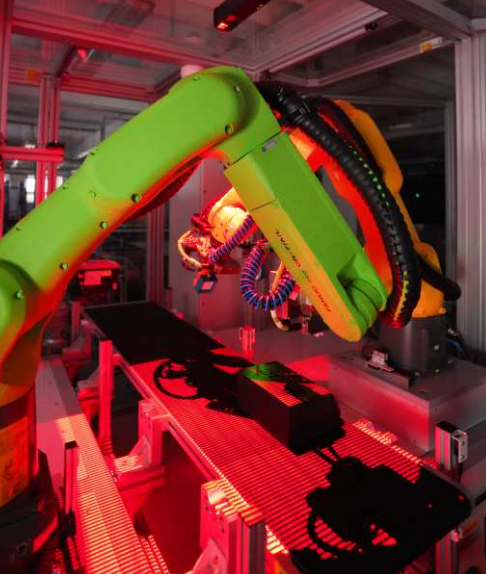


## Machine Vision

- Feasibility study and design of the optimal solution
- Replacement of inadequate CCTV systems
- Integration of machine vision systems
- Integration of camera sensors and third-party systems
- Camera and multicamera systems with own software
- Evaluation of data from linear 3D scanners with moving objects and flatbed scanners in static installations
- Reliable product quality control, dimensional inspection, defect detection, completeness of assemblies
- Robot guidance for product picking and stacking
- Special applications for precision measurement, fast moving objects







# MECHATRONICS

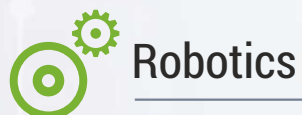


## Machine Vision

### OUR ADVANTAGES

- Custom studies in advance
- In-house testing lab
- Guaranteed accuracy
- User interface comfort
- High flexibility of the solution
- Reliability of inspection and control
- Customer configurability
- Analytical methods
- Artificial intelligence systems





## EXACT MEASUREMENT

- Precise product measurement 0.1 mm
- Automatic robot and tool calibration
- 100% production measurement

## WORKING OF METALS

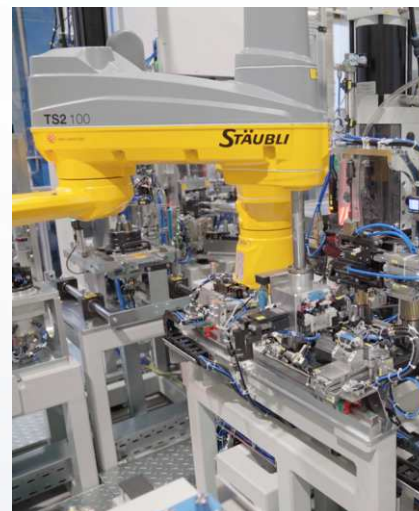
- Milling, grinding, drilling
- Automatic tool correction in Z-axis
- Easy parametrization of machined values

## MANIPULATION

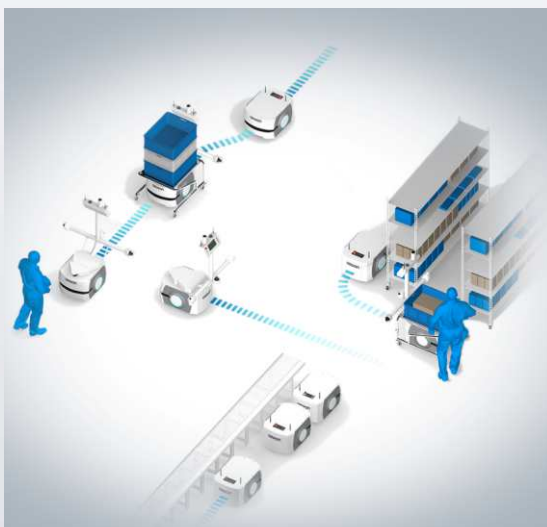
- Maximum optimization of robot trajectories
- Automatic machine calibration on OK, NOK pieces
- Emphasis on low machine clock speed

## COBOTS

- Cooperation between cobot and operator
- Positioning of the product relative to the operator
- Setting of safety zones







# MECHATRONICS |



## Autonomous robotic vehicles

- An efficient alternative to logistics solutions
- Automation of cargo transport through industrial premises and warehouses
- Fast response to obstacles and the ability to find the shortest route to the destination
- Easy to use via web interface

### IMPLEMENTATION

- Fast commissioning
- User-friendly environment
- Load capacity 60 to 1500 kg

### INSTALLATIONS

- Roller conveyor, lift
- Trolleys, racks, frames
- Hook for attaching trolleys

### AREA OF USE

- Automotive , industry
- Warehouses, logistics
- Food industry, healthcare

### FLEETS

- Multi-robot fleet management
- Prioritization of tasks and battery recharging
- Simulation capability to maximize optimization

# MECHATRONICS |



## Modernisation of control systems

### NEW FUNCTIONALITIES

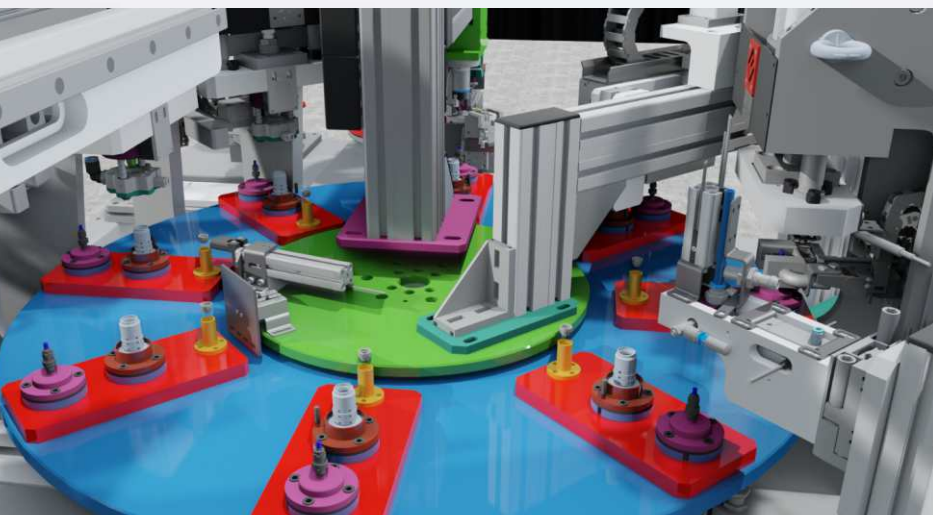
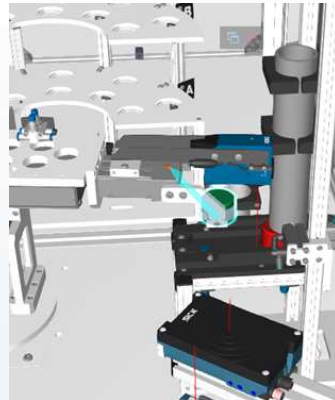
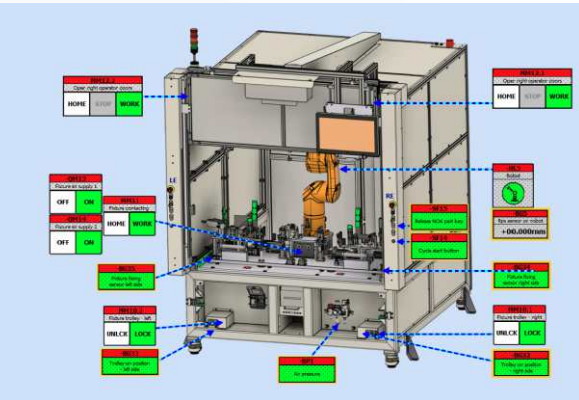
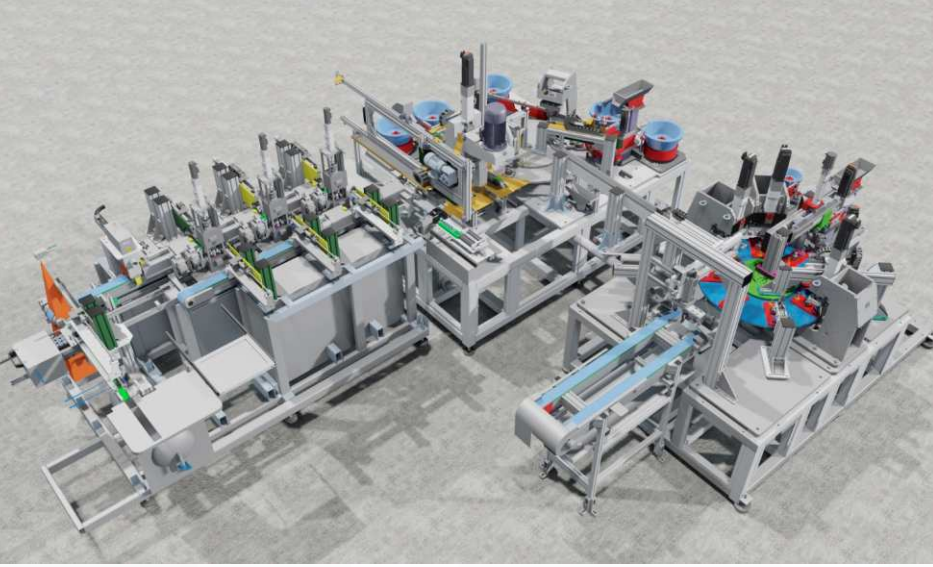
- Increased reliability
- Increase in production volume and quality
- Enhanced diagnostics
- Predictive maintenance

### CLOUD-BASED SOLUTION

- Remote access
- Data and parameter backup
- Data collection and production evaluation with key performance indicators (KPIs)







# MECHATRONICS |



## Digital Twin

- Simulation of processes and prepared sequences
- Testing of machine behaviour during faults
- Demonstration of functionality in virtual space
- Reduction of commissioning time for a real machine
- Minimal technology downtime during integrations

### OUR ADVANTAGES

- Own SW tools
- Experience
- Flexibility
- Professionalism
- Speed

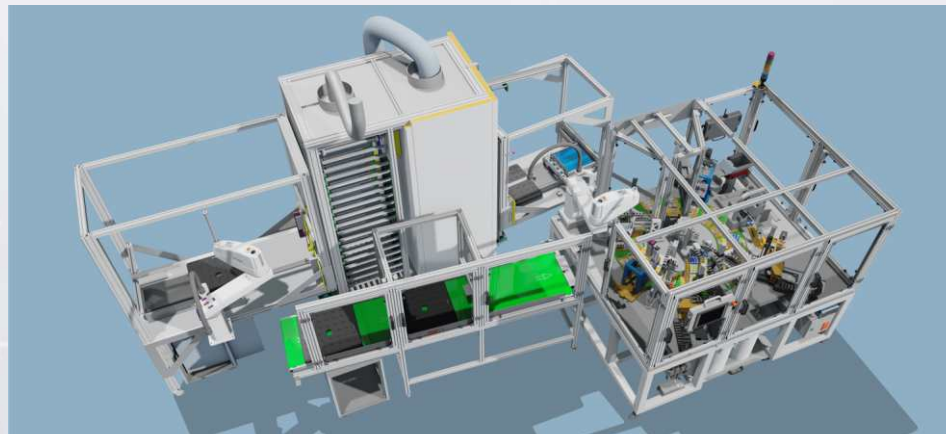
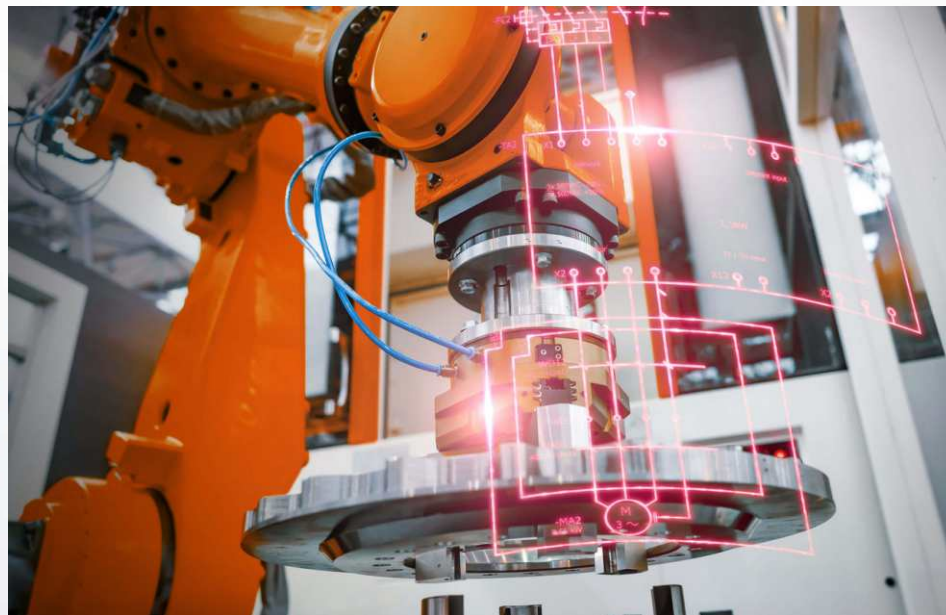


# MECHATRONICS |



## Machine Design / Electroprojection

- Study, basic design proposal
- Detailed design solution
- Modern technologies and processes
- Design control calculations
- Process units, explosion hazardous environments 
- The project documentation is prepared by the design SW EPLAN Electric and ProPANEL
- Extensive experience in the following fields: automotive, power engineering, photovoltaics, heavy industry, construction, theatre technology







# MECHATRONICS |



## Photovoltaics and electromobility

- Energy management systems - monitoring and control of consumption, production, purchase and sale of energy in order to minimize costs or profit maximization
- Comprehensive supply of photovoltaic power plants from the point of order connection conditions to initial inspection and debugging
- Energy storage support (batteries, hydrogen, other forms of storage)
- Management of electric vehicle charging stations (distribution of consumption over time, limiting peaks, prioritization)
- Intelligent infrastructure system for small e-mobility "smelvec" (charging HUBs, mobile apps and core system)
- Central monitoring and control of dispersed energy sources and charging stations

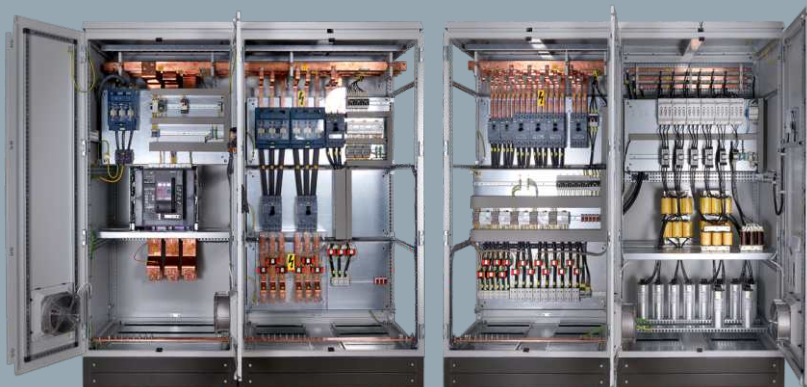


## Production of switchboards

- Manufacture of low voltage switchboards of any type and purpose
  - 2D and 3D design of switchgear construction
  - Electrical installation and service work
  - Testing and inspection of electrical equipment
- 
- Switchboards for power industry.
  - Compensation switchboards.
  - Switchboards for single-purpose and working machines.
  - Switchboards for cranes and handling equipment.
  - Switchboards for the shipping industry.
  - Switchboards for control systems
  - Switchboards for MaR.
  - Control desks, dispatchers panels.
  - Switchboards for collection and distribution
  - Data distribution and distribution systems (19" system).
  - Industrial switchboards.
  - Switchboards for civil amenities.
  - Switchboards for residential and individual construction.
  - Distribution switchboards for 1000 V and 4000 A.







# MECHATRONICS |



## Production of switchboards

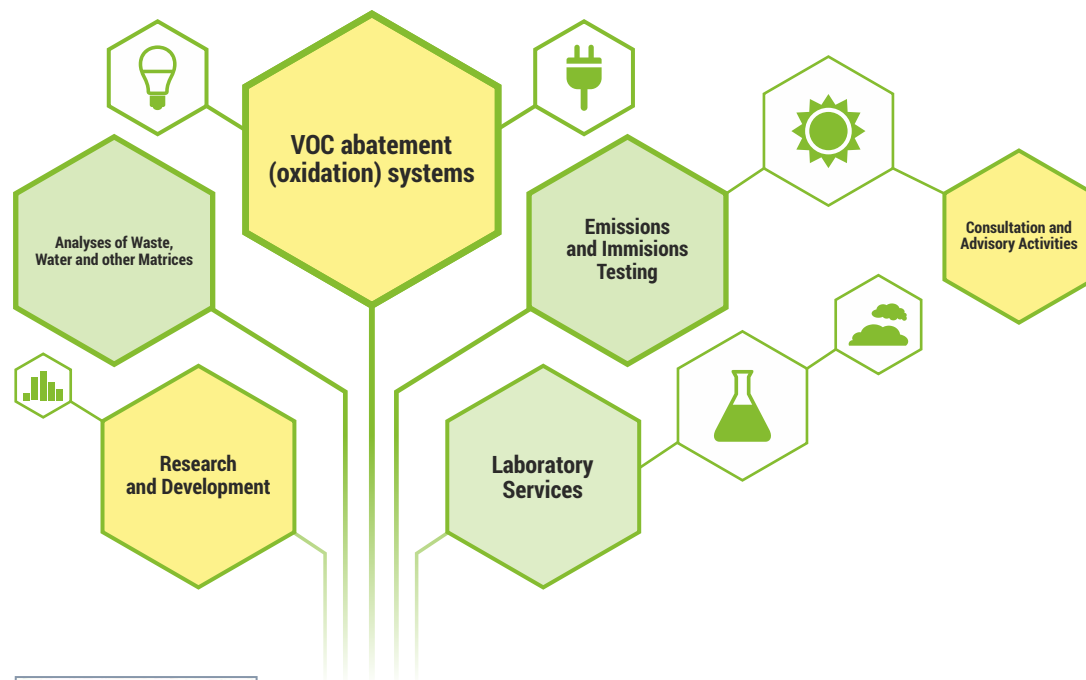
- We manufacture hundreds of enclosure switchboard arrays per year
- We deliver to established operations of multinational companies
- We use proven components from leading manufacturers Siemens, Schneider, ABB and others
- We carry out testing and testing of switchgear including control calculations of heat loss
- When designing the construction we use proven designs
- We use digitalisation in the design and manufacture of switchboards
- Production of atypical switchboards according to client requirements



The switchboards are manufactured in accordance with the new set of standards **ČSN EN 61439** valid from 09/2014.

We are holders of the relevant authorizations of the **Technical Inspection of the Czech Republic**:

- for installation, repairs, inspections and tests of dedicated electrical equipment.
- For activities in objects falling under the State Mining Administration, we hold authorization:
- for designing installations of reserved electrical equipment
  - for installation, repair, revision and testing of reserved electrical equipment



## CERTIFICATE OF ACCREDITATION

ČSN EN ISO/IEC 17025:2018

Chemical and physical analysis of surface, technological, wastewater and groundwater, water leachates, waste, soils, sludges, sediments, oils, gases, emissions and working environment samples and sampling of water and waste.



## MEASUREMENT OF EMISSIONS AND IMMISSIONS

Authorised emission and immission measurement site for all groups of industrial sources.

- Authorised emission and immission measurement
- measurement of the sorption capacity of absorbers
- measurement of the working environment
- technological measurements
- consulting activities



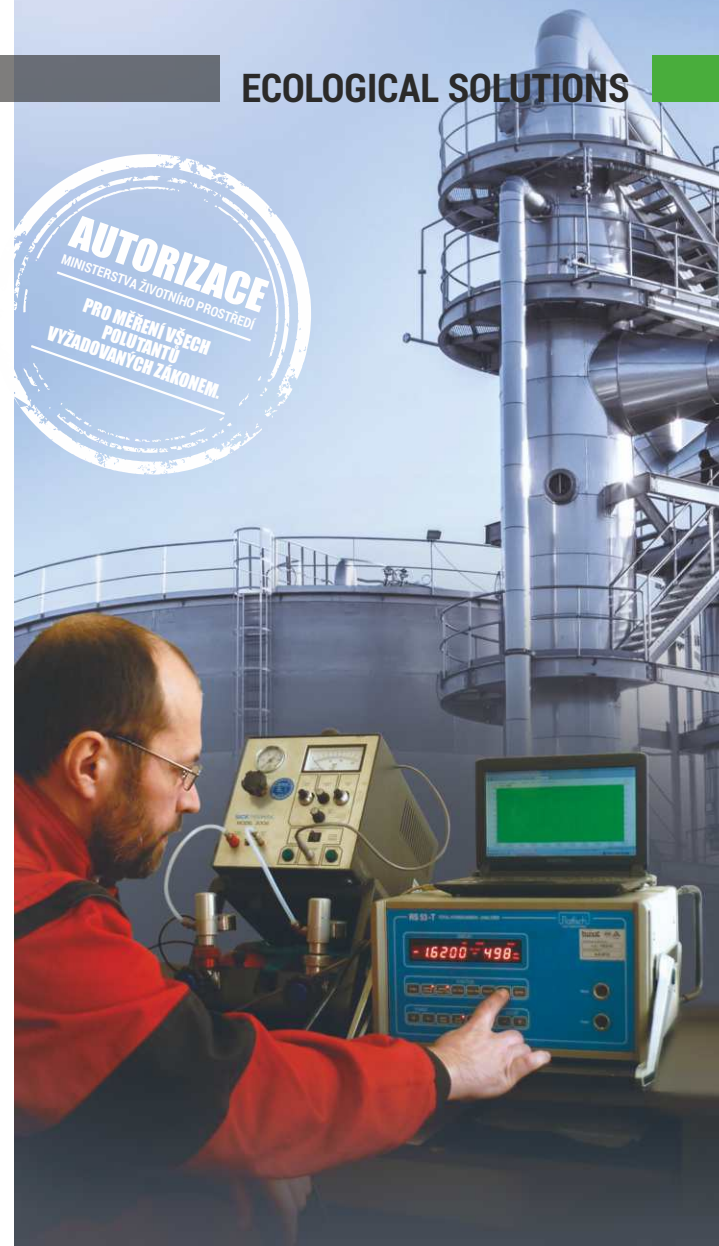
## RESOURCES

- Mobile air-conditioned measuring vehicle



## METHODS FOR THE DETERMINATION OF POLLUTANTS

- solid polluting substances - gravimetric determination
- sulphur dioxide - spectrometric determination
- carbon monoxide - spectrometric determination and electrochemical cell
- oxides of nitrogen - spectrometric determination, chemiluminescence and electrochemical cell
- organic substances expressed as total organic carbon (TOC) - flame ionisation method
- chlorine and its gaseous inorganic compounds - determination by volumetric, photometric and ionic methods chromatography
- fluorine and its gaseous inorganic compounds - determination by photometric and ion chromatography
- hydrogen cyanide, cyanides - photometric determination
- hydrogen sulphide - photometric determination
- ammonia - photometric determination
- organic gases and vapours - determination by gas chromatography
- persistent organic pollutants (PCDD, PCDF, PCB, PAHs) - determination by HRGC-HRMS, GC/MS, HPLC/FLD
- metals - determination by AAS, ICP
- strong inorganic acids (except HCl) expressed as H<sup>+</sup> - determination by titration, spectrometry
- sulphuric acid - ionic determination chromatography
- nitrous oxide - spectrometric determination

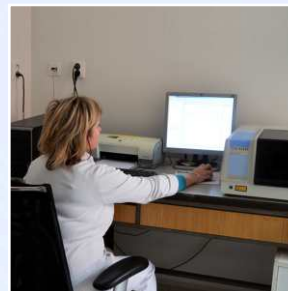




### PHYSICAL AND CHEMICAL LABORATORY

Accredited physical and chemical laboratory for analyses of water, waste and other matrices.

- analysis of wastewater from sewage treatment plants, oil separators, car washes, grease traps, etc.
- groundwater analyses; monitoring wells
- waste analysis (soils, sludges, solvents, oils)
- analysis of bio-waste (composts, digestates)
- analyses for the assessment of hazardous properties of waste
- analyses of concentrates from emissions, immissions and working environment
- special analyses according to specific requirements
- expert consultancy.





## SUPPLY OF TECHNOLOGY FOR AIR PROTECTION

Technologies for cleaning the air of organic pollutants where they are found  
(an arrow indicating increasing concentrations of organic pollutants  
and on it we place units)

- 30 - 500 mg/m<sup>3</sup> rotary zeolite concentrator unit with subsequent recuperative thermal oxidation for large volumes
- 300 - 3000 mg/m<sup>3</sup> RCO (regenerative catalytic combustion) unit, SWINGTHERM system
- 2000 - 5000 mg/m<sup>3</sup> regenerative thermal combustion unit for oxidation of organic substances
- 2500 - 6000 mg/m<sup>3</sup> regenerative catalytic combustion unit (flow reactor with flue gas heat exchanger)
- 3000 - 10000 mg/m<sup>3</sup> regenerative thermal combustion unit (flow reactor with flue gas heat exchanger)

## AREAS OF APPLICATION:

Chemical, pharmaceutical, automotive, printing or petroleum industries,  
Surface treatment of materials and products.



## SUPPLY OF TECHNOLOGY FOR THE PURIFICATION OF WASTE GASES

### ABSORPTION

Solvent absorption (washing)  
Absorption associated  
with chemical reaction  
(chemisorption)

### EXAMPLES OF WASTEWATER TREATMENT APPLICATIONS GAS ABSORPTIONS

- from pickling of sheet metal in hydrochloric acid
- etching of silicon plates in hydrofluoric and nitric acid
- etching precious metals in royal iodine

### ADSORPTION

Waste air purification  
in stationary adsorbers

### EXAMPLES OF WASTE AIR ADSORPTION TREATMENT APPLICATIONS

- fumes of chlorinated hydrocarbons from degreasing baths
- solvent vapours from food processing, chemical or pharmaceutical production

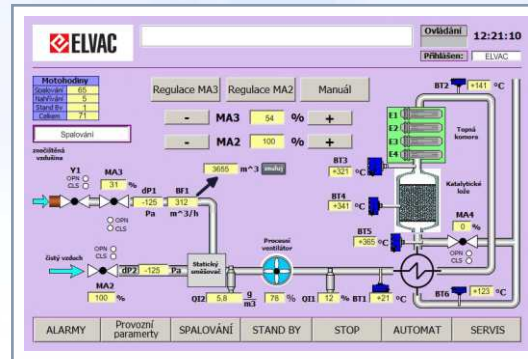


## MOBILE UNIT FOR RECUPERATIVE CATALYTIC OXIDATION

To address short-term volatile organic compound (VOC) emissions, the company **ELVAC EKOTECHNIKA** developed and built a mobile regenerative catalytic oxidation unit.

### Function description

- Based on recuperative catalytic oxidation
- Combustion of even explosive concentrations
- Input dilution ratio up to 1 : 100
- Process control by FID analyser
- 3 independent safety circuits:
  - LEL detector (lower explosive limit)
  - Continuous TOC analyser
  - thermal process control



### Using the unit and its advantages

- High mobility, set-up and activation within 2 days
- Use in a range of days, weeks, (max. month)
- Independence from power source (uses own power supply)
- Low operating costs due to autothermal operation
- Ability to clean higher gas volumes, than conventional technologies of this type



## SOFTWARE

### SOLUTIONS, PRODUCTS AND SERVICES

We develop control, monitoring, geographic and information systems for the aviation, military, water management, industry and power engineering. We provide integrated solutions as well as turnkey development.

We offer our own solutions:

Digital signage - **InfoPanels**

Turnkey software development - **SYSTÉMY NA MÍRU**

Advanced production planning - **APSOLUT!**

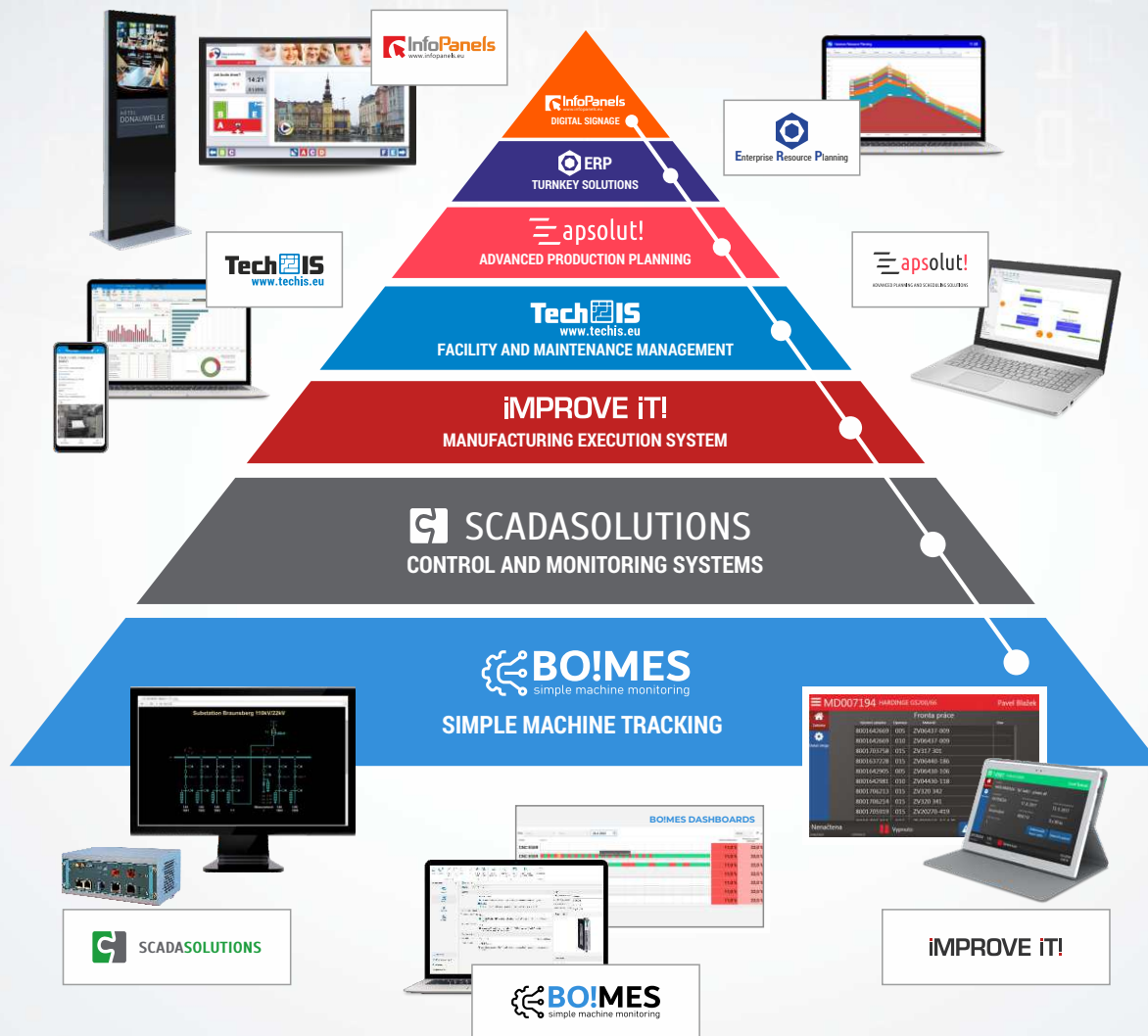
Technology maintenance management - **TechIS**

Production information systems - **iIMPROVE IT!**

Control and monitoring systems - **SCADASOLUTIONS**

Simple machine tracking - **BOIMES**

We analyse business processes and provide their modelling, prototyping and support via information systems. We provide certified service to all the delivered products up to the scope of 24/7.





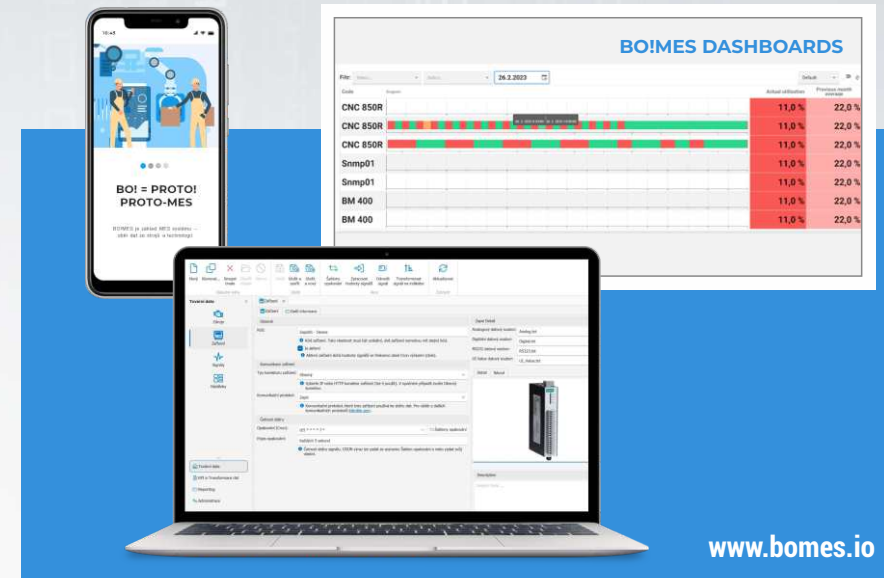
## SCADASOLUTIONS | Control and monitoring systems

We offer an integrated set of applications for industrial automation and data visualisation that helps build new control and monitoring systems while integrating the current ones.



## BO!MES | Simple machine tracking

BO!MES is an affordable software solution that allows collection of data from your technologies through standard communication protocols. The most common task for BO!MES is technology availability (UpTime) monitoring.



## **IMPROVE IT!** | Production process control

IMPROVE IT! is a modular MES/MOM production informationsystem that allows you to integrate all the company data and helps you set processes to improve labour productivity.



The image displays three screenshots of the IMPROVE IT! software interface. The top left screenshot shows a production order (PO) for 'ARTWORK C.' with various parameters. The top right screenshot shows a machine status screen for 'MD007194 HARDINGE GS200/66' with a table of production data. The bottom screenshot shows a tablet displaying a production order for '44201690324 - tyč řezací - přední díl' with a status of 'Výrobna' and a date of '17. 8. 2017'.

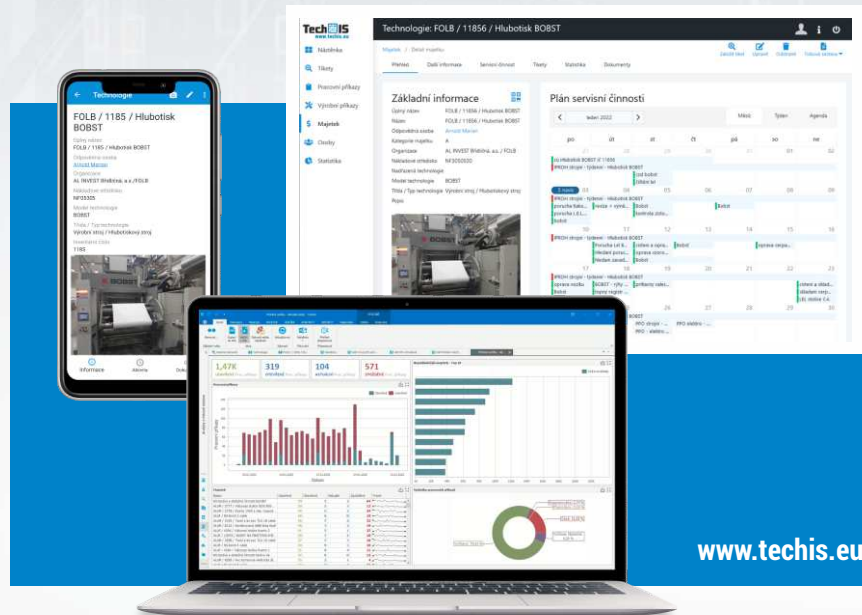
**www.improveit.cz**

**IMPROVE IT!**



## **TechIS** | Technology maintenance management

The TechIS information system is a modern solution for planning, control and records of maintenance of company machines, equipment, fleet and assets in general. It provides users with a continuous accessibility to essential information and contributes to savings and better maintenance management.



The image displays three screenshots of the TechIS software interface. The top left screenshot shows a machine status screen for 'FOLB / 1185 / Hlubotek BOBST'. The top right screenshot shows a maintenance plan for 'FOLB / 1185 / Hlubotek BOBST' with a table of maintenance data. The bottom screenshot shows a laptop displaying a maintenance plan for 'FOLB / 1185 / Hlubotek BOBST' with a status of 'Výrobna' and a date of '17. 8. 2017'.

**www.techis.eu**

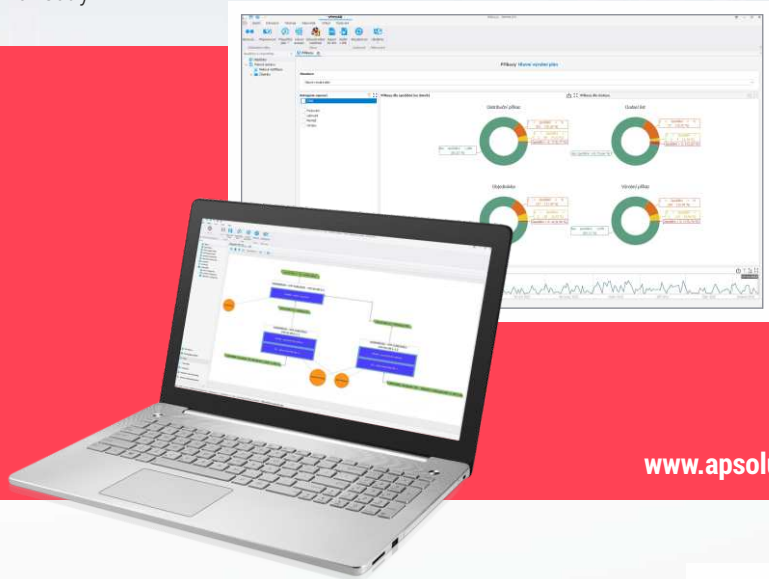
**TechIS**  
www.techis.eu





## APSOLUT! | Advanced production planning

APSOLUT! is an effective APS software with numerous properties and functions surpassing competitive products. The user interface and data visualisation in the APSOLUT! product is based on Microsoft standards. The access to the individual functions of the application is similar to Microsoft Office. It is most often used by people working in operation and top management, planners, employees at purchasing and sales departments, and other employees using APS software outputs, directly or indirectly.



[www.apsolut.cz](http://www.apsolut.cz)

**apsolut!**  
ADVANCED PLANNING AND SCHEDULING SOLUTIONS



## InfoPanels | Company data visualisation

The InfoPanels system is an exceptionally effective tool for a fast, simple and reliable data presentation. Thanks to its variability, it is mostly used in industrial businesses, in offices, schools, shops or hotels.

In the production, the screens can display the current order status, plan performance, operating information for employees or representative welcome to important company visitors.



[www.infopanel.eu](http://www.infopanel.eu)

**InfoPanels**  
[www.infopanel.eu](http://www.infopanel.eu)





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