



NOVELTIES

ITM Poland fairs enable to present the most up-to-date technological solutions and market premiers. Information on innovative products, services and technologies can be found in especially designed catalogue`s chapter. Moreover, each stand with the novelties presented on, is marked so it can be recognised easily by visitors. The list of innovations is also introduced in visitors` guide.

MACH-TOOL

ASCO Sp. z o.o.

Pavilion 3, Stand 29

FWN-300-4A

FWN-300-4A is a modern machine tool designed specifically for the railway industry. Its construction allows to machine both ends of axle pivot at the same time, the operation being divided into several stages, including the use of CNC rotary table, which helps significantly shorten the technological process, while obtaining identically finished axle ends.

TLA 8000 Horizontal Drilling System

TLA 8000 horizontal drilling system is a technologically advanced machine tool designed for trepanning of solid material, and boring holes using SANDVIK STS system tools with a maximum diameter of 500mm, and a maximum length reaching 8000mm. The concept of trepanning brings a considerable increase of productivity, being directly translated into profit.

WG-1600 Drilling Machine

The compact WG 1600 deep hole drilling machine features a modern CNC system and innovative "Easy DrillMill" technology, which allows to carry out 3 different types of processing: gun-drilling, conventional drilling, and milling. The machine enables precise drilling with diameters up to 20 mm, and drill depths up to 2000 mm, while maintaining high concentricity.

BULMACH Sp. z o.o.

Pavilion 3a, Stand 49

YVM-1000 Vertical Portal Machining Centre

Rigid structure – uniform portal casting ensures stability, resistance to vibration, and high precision. Excellent for milling, drilling, threading, and mould processing operations.

Table supported by three guides. Travel range (X/Y/Z) 1020x510x450 mm. Direct drive spindle (12,000 rpm) employing high-precision ceramic ball bearings. Rapid tool changer with a capacity of 24 tools.

DAL Lickiewicz Sp.j.

Pavilion 7, Stand 5

Traficline Industrial Flooring

Traficline is a range of flexible, durable, non-slip flooring panels, featuring edge-mounting system. They make an excellent industrial flooring solution wherever high load bearing capacity is required, along with resistance to heavy pedestrian traffic. Traficline advantages: designed for installation on damaged, weakened, oil-contaminated surfaces of all types; fast and easy, dust and noise free installation; production processes can continue as the floor is being laid; glueless installation enables swift and unproblematic removal, as well as transfer to a different location, if necessary.

EHT POLSKA Sp. z o.o.

Pavilion 8, Stand 13

SCS 16.5 cnc – Compact Press Brake

SCS 16.5 is an ideal solution for production of fine details using press brakes (maximum bending length up to 550mm). Owing to the unique press brake design, U profiles can be processed without any depth limitations. Very easy operation. No complicated programming procedures involved.

FATPOL TOOLS Remigiusz Koprowski

Pavilion 9, Stand 8

Clamping Collets and Feed Fingers for Multi-Spindle Automatic Machines

Our product portfolio encompasses a broad variety of clamping collets and feed fingers for multi-spindle automatic machines: BPU, AWA, GILDEMEISTER, SCHUTTE, INDEX, SKODA, TORNOS, PITTLER

Metric Tapers for Large-Size Machine Tools

We offer metric tapers (sizes 80, 100, 120) with any selected tool holder type: for cutters with keyway and driving slots, for collets (DIN6499 and DIN6388), for tools with cylindrical shanks, reducing sleeves for tools with Morse taper shanks, and SK 7:24 tapers.

GH ELECTROTERMIA SA

Pavilion 3a, Stand 13

DIGIMAC - Compact Induction Heating System

DIGIMAC is a compact and transportable system able to heat determined areas of metal parts in a fast, accurate, clean and easy way through induction heating. The main benefits of this system are: increased productivity and parts quality, energy savings and reduced production costs, easy to operate and process control, environment friendly process: low noise level and no toxic gases. Digimac is used in various industrial applications such as: heat straightening of metal parts, welding of cooling pipes, welding of hard to reach areas in large parts, in hazard zones where open flame must be avoided, paint and varnish cleaning, sealing.

Kerb-Konus-Vertriebs-GmbH

Pavilion 9, Stand 68

Ensat-SBS Self-Tapping Threaded Insert

Ensat insert is screwed into a pre-formed or pre-drilled receiving hole, automatically tapping its own thread into the hole wall. With a screw inside, Ensat ensures a backlash-free fit with extreme loading capacity. For chip-sensitive applications, special Ensat inserts have been designed, featuring enclosed cutting holes serving as chip reservoirs, and being additionally sealed from below.

PLASTMET Sp. z o.o. / SICMI Srl

Pavilion 5, Stand 148

HYDRAULIC PRESS MODEL PMM

Hydraulic Press PMM from 150 to 1000 Ton. Features: movable stanchion with longitudinal hydraulic displacement, movable cylinder with transversal hydraulic displacement. Use: sheet and metalwork straightening, bending and different testing operations. Controls: by coordinate levers and pushbutton, following to "CE" norms. Optional: welded and bored plate – control by hanging keyboard with 180° rotation – small cylinders fitted in the table for pieces lifting. Advantages: Loads/unloads easier from the top; the straightening point can be reached without moving the piece; possibility of lifting the piece in manner to insert blocks or lifting clamps.

SCHENCK – RoTec Polska

Pavilion 3a, Stand 17

SmartBalancer2 – Portable Diagnostic Device for Field Balancing

SmartBalancer2 – cutting-edge device for field balancing, offering such functionalities as FFT analysis, bearing diagnostics, menu language: Polish, archiving and direct printout of measurement reports using USB interface.

PASIO5 – The Latest Balancing Machine with a Capacity up to 5 kg

PASIO5 – universal horizontal dynamic balancing machine for rotors up to 5 kg, featuring state-of-the-art technologies of unbalance measurement, intuitive control system with menu in Polish, and many additional functionalities.

SIA BIURO TECHNOLOGICZNE Sp. z o.o.

Pavilion 9, Stand 42

4515 siabite – Heavy-Duty Fibre Disc with Ceramic Aluminium Oxide Grit

This disc with a heavy-duty fibre backing is well suited for fast stock removal while finishing stainless steel and other special alloys. Owing to special coating with active additives, the workpiece is protected against heat-related deformation and discolouration. Longer product lifetime.

SODITRONIK

Pavilion 3a, Stand 28

RXP600DSH High-Speed Machine Tool

RXP600DSH is the latest 5-axis high-speed machine tool (up to 75,000 min⁻¹) from Rödgers. It is characterised by extreme flexibility as well as high processing dynamics and precision. The machine can be featured with rotating and tilting tables with diameters from 200 to 600 [mm]. It occupies limited space in the work area - 500 x 650 x 400 [mm³]. The table is ready for palletising operations.

STARYS Stachowiak Ryszard Przedstawicielstwo Handlowe

Pavilion 5, Stand 157

FASEN – FIX TYPE FF 3.1 Stationary Machine from Kuhlmeier

This FASEN – FIX TYP FF 3.1 stationary machine manufactured by Kuhlmeier is designed for bevelling, edge and seam preparation prior to welding. Its oscillating grinding unit mounted on a horizontal carriage has been developed for precise processing of high-tensile, abrasion-resistant, fine-grained, and acid-resistant steel grades. Technical specifications: table length 1500 or 3000 mm; grinding capacity $50 \div 80 \text{ cm}^3/\text{min}$, depending on steel quality; min. workpiece dimensions $100 \times 100 \text{ mm}$; workpiece thickness $3 \div 80 \text{ mm}$; bevel angle $0^\circ \div +60^\circ$.

T – RS 2000 / 100 Roll Straightening Machine for Sheet Metal and Workpieces – G+K Umformtechnik

A straightening operation consists in flexing of processed material under a series of alternating rolls. The machine features sheet feeding rolls, as well as belt driving rolls – mounted at the inlet and outlet – to facilitate sheet conveying. Technical specifications: maximum working width 2000 mm; sheet thickness $60 \div 100 \text{ mm}$; maximum endurance at $600/700^\circ$ material temperature - 680 N/mm^2 ; number of straightening rolls - 7; roll diameter - 700 mm; processing speed $0.05 \div 0.2 \text{ m/sec}$; noise level - below 78 dBA; driving power ca. 460 kW.

TORNOS TECHNOLOGIES POLAND Sp. z o.o.

Pavilion 7, Stand 41

TORNOS DELTA

Delta is a new line of TORNOS machines developed for processing simple elements with high precision. Key advantages: TORNOS quality and precision; 3, 4 or 5-axis machine catering for all needs; fast and easy setup; machining possible with or without guide bush; number of axes 3-5; machining range $\varnothing 12\text{mm} - 20\text{mm}$.

TOS KURIM - OS, a.s.

Pavilion 3a, Stand 26

FU(Q) EFEKTIV-5axis

EFFECTIVE machine characterised by high technological advancement, enabling to implement state-of-the-art processing technologies. BASIC PARAMETERS: Working travel range: longitudinal travel (X): 3 000, 4 000, 5 000 - 20 000mm x 5 000 mm; cross travel (Y): 1 250 mm; vertical travel (Z): 2 000 mm or 2 500 mm; cross travel of table - CES (V): 1 250 mm or 2 250 mm. Power of the main drive unit: 28 kW. EFEKTIV = 5-axis machining centre available at a price of a horizontal boring machine.

TOX® PRESSOTECHNIK Sp. z o.o.

Pavilion 5, Stand 148a

TOX® - TWINpoint – 2 for the Price of 1; Innovative Sheet Metal Joining Technology

Double joint provided in a single stroke. The key feature of this solution is the impressive joint strength, being 1.5 – 2 times higher than that in single TOX-Round Joints. Main advantages of the new TOX®-TWINpoint include: improved production efficiency (two joints provided in the same time as one); anti-rotation lock; greater joint strength irrespective of load direction; reduction of zipper effect.

VECTOR HIGH TECH MACHINERY / HEUN, MATEC, TECNOteam and ZIERSCH

Pavilion 3, Stand 35

MATEC-30 HVK Universal Milling / Milling-Turning Centre for 5-Side 3D Machining, with Travel Lengths of 1300x600x800 mm

Universal machining centre serving as a perfect solution for comprehensive manufacturing and tool-making applications, enabling 5-side processing of 3D shapes. Exceptionally broad working range of the Z axis (800 mm), and rotary table allowing to process workpieces with diameters up to 940 mm!

MATEC-30 HV-K can also be supplied as a milling-turning centre.

AMADA-WASINO GLS-5T Optical Precision Profile Grinder with 20x and 50x Projector Magnification and up to ø180 mm Grinding Wheel Diameter; MAN, NC, CNC Operating Modes

Top quality ultra-precise grinder from AMADA. Grinding wheel diameter up to 180 mm. Geometrical precision $\pm 1\mu\text{m}$; axis resolution 50 nm = 0,05 μm . Switchable projector magnification – 20x / 50x – with no changeover required. Teach-in-Playback functionality to compensate for wheel wear. Optional C-axis for 3-axis interpolation.

ZIERSCH ZT48 Precision Surface Grinding Machine with a 800x500x400 mm Working Area and ø400 mm Disc Diameter

Precision surface grinding machine with a 800 x 500 x 400 mm working area, and continuous motor rotation control. Dedicated for manufacturing and tool-making applications. Unparalleled precision and quality of processed surfaces thanks to high weight, considerable spindle capacity, and ø 400 mm grinding disc. Fully automatic grinding and planing cycles. Additional advantage – attractive price.

WEMAS GmbH

Pavilion 3a, Stand 76

Automation of Manufacturing Processes

The leading theme of this year's WEMAS offer at MACH-TOOL 2009 is automation of manufacturing processes. WEMAS is showcasing two new production solutions: CNC lathe with a gantry robot, and a vertical milling centre with automatic pallet changer and workpiece clamping system. Both these solutions allow to manage production-related operations without the need for constant staff supervision.

TRANSPORTA

NISSAN FORKLIFT

Distributor: Marubeni Machinery Distribution Poland Sp. z o.o.

Open Grounds, sector 3, stand 4

NISSAN DX Eco Series Counterbalanced Forklift Truck Powered by LPG or Diesel

While developing Nissan's DX Series, designers placed a special emphasis on operator comfort along with a high capacity of hydraulic systems and engine performance. As an alternative to POWER mode, LPG models feature a unique ECO switch, offering fuel savings up to 18 percent. A new solution implemented in DX Diesel models is the radiator enabling fast heating of heater plugs,

which helps to start the truck in very low temperatures, and obtain expected operating efficiency in a relatively short time.

WORK SAFETY IN INDUSTRY

FOR SPORT PLUS

Pavilion 7a, Stand 52

Forearm Guard

This forearm guard has been designed specifically to protect the forearm against mechanical shock, injury, skin chafing, or vibration. Made of thermal insulation foam secured with a layer of cotton, it helps compensate for machine vibration. Two tightening straps with Velcro-type fasteners allow to perfectly adjust the guard to an arm.

KIRSCHSTEIN & PARTNER

Pavilion 7a, Stand 47

Managing Consciousness

With "Managing Consciousness" a new way for occupational health and safety is presented. Based on the health and safety culture in companies and taking into account the basic principles of human behavior, it is shown how to motivate people towards a safe behavior and how to increase safety consciousness in a sustainable way.

RESEARCH FOR INDUSTRY

AMS ROZONE GmbH

Pavilion 5, Stand 134

Smartwasher

Smartwasher is a new parts cleaner. It doesn't use toxic solvents, but a water-based cleaning fluid, which cleans as good as solvents. The fluid is not toxic, not inflammable, anti-allergic, it does not cause cancer or other diseases. Solvents have all these disadvantages. Smartwasher is much more safe, than solvents are. Smartwasher includes microbes (living bacteria), which eat away the oil and grease, which was cleaned from the parts. Smartwasher is a closed system. You do not have to change fluids or put fluids out of it. The consumption of fluids is >5 times lower, than with solvents. There is no waste and no hazardous waste coming out of it. It eats away toxic oil and grease to CO₂ and H₂O. It has no toxic emissions, such as VOC. Smartwasher is 100% VOC-free. Smartwasher is much more environmental-friendly, than solvents.

INSTITUTE OF MECHANISED CONSTRUCTION AND ROCK MINING

Pavilion 3a, Stand 64/ MACH-TOOL

Adaptive Dual-Punch Head for Riveting Machines with Complex Punch Action

This innovative solution allows to rivet connectors placed at different heights, and made of different materials, including both solid and tubular solutions with different diameters – all at the same time. The unique head design implemented herein allows to adapt punch position, as riveting begins, to

various connector heights, also helping to vary axial thrust values for individual punches, depending on the connector type. The system is well suited for combining fragile elements (glass, ceramics) and soft materials (plastics) without the risk of damaging workpieces during riveting. This patent pending solution greatly improves riveting operations, ensuring increased efficiency and high connection quality during production.

METAL FORMING INSTITUTE

Pavilion 5, Stand 179 / MACH-TOOL

The innovative technology of net-shape forming of metal powder parts

Production of parts with complex shapes, characterized by high density, good mechanical and service properties, good tribological properties.

New generation of the self-clamping TR type devices

The TR type devices are intended for forging on power presses of general purpose with capacities of 630 – 2500 kN. They are used for short and medium series production of forgings like pins, mandrels, bolts, axles, spindles, cones, lifting slings, valve bodies, balls with a hole and others.

Spinning and flow forming technologies and machines

Spinning and flow forming are methods of shaping products on a rotating mandrel by means of a roller. Methods and machines are recommended in short and medium series manufacturing of axisymmetrical products, which have improved strength and hardness.

The innovative technology and machine for production of traffic signs

The technology and machine for double bending of the peripheries of the metal (steel and aluminium) bases are intended for production of high quality circular and non-circular (triangular, square, octagonal and rectangular) traffic signs.

The THC-17 – UG 002 type work centre for neck forming of tubes

The neck forming work centre is intended for the local diameter reducing of the tube with the diameter up to 50 mm and the length up to 2,100 mm by the radial compression.

INSTITUTE OF SECURITY TECHNOLOGY „MORATEX“

Pavilion 7a, Stand 57 / WORK SAFETY IN INDUSTRY

QUICK RELEASE INTEGRATED VEST (BULLET-PROOF AND TACTICAL) FOR THE POLICE

The vest features its quick-release system which allows for taking it off fast. All the vest area is covered with the system of straps for fastening an equipment depending on the wearer's need. An evacuation handle is on the back part of vest useful for pulling a wounded wearer out of threat area.

INSTITUTE FOR SUSTAINABLE TECHNOLOGIES – National Research Institute in Radom (Poland)

Pavilion 5, Stand 55

The UPE-11 device for purifying used cooling fluids from automobiles.

The UPE-11 device is designed to purify used cooling fluids from automobiles. The UPE-11 device can be used in car service stations, transport companies, public transport companies, and car manufactures. Advantages: reduction of the use cooling fluids up to 50%, limitation of the amount of hazardous waste. Efficiency: 60 dm³/min.

The UPE-11 device for maintenance of the slow-burning hydraulic fluids.

The UPE-12 device is designed for purifying the slow-burning hydraulic fluids of the HFC type.

Using: in hydraulic installations and with devices exploited in zones where there is the danger of explosion due to the mixture of dust and air, for instance, in foundries and aluminum smelters. Advantages: extended exploitation of fluids of the HFC type, decrease in the exploitation costs of devices and hydraulic installations. Capacity: $30\div 40 \text{ dm}^3/\text{min}$.

T-26 Testing Device for Evaluation of Friction and Wear of Engineering Materials in Vacuum Conditions

The solution has been developed for assessing frictional properties and wear resistance of material combinations applied for sliding elements of machines, designed for operation in vacuum conditions. Wear resistance is evaluated and friction factor is determined for specific combinations of materials to be used in sliding motion.

T-26 device allows to measure friction in accordance with ASTM G 99 and DIN 50324 recommendations.

The multifunctional technological device for the execution of the hybrid surface treatment technologies.

The device is prepared in DOMINO system. It allows for the execution of the different hybrid technology of superficial layer in one technological cycle, i.e. through the fluent transfer between each phase of the superficial layer. The device allows for manufacturing the following compound layers: nitrification layer + coat PVD, the layer of intermetallic chase + coat PVD, the layer of metal's nitride + PVD coat.

Optical inspection system for the quality control of the surfaces of the faces of bearing rollers.

The device is designed for the automated interoperation quality control of the execution of surfaces of the faces of bearing rollers in a manufacturing line. The optical inspection method is used for the detection and identification of surface faults. The basic fault types detected on the roller surface: geometric faults, material losses, cracks, corrosion, lack of hardening, traces, forging defects, grinding defects, seizing, stratification (31 fault types).

Laser 3D-XY profilometer

The profilometer is designed for contactless measurement of surface topography profile and form measurement. The scanning process is performed during object movement on the moving XY table. The laser head is fixed. The chassis construction allows the laser head height adjustment to be dependent on the object height.

Laser 3D-R profilometer

The profilometer is designed for contactless measurement of surface topography profile and form measurement. The scanning process is performed during object rotation on a turntable. The laser head moves along the Z-axis. The chassis construction allows the laser head height adjustment to be dependent on the object height.

FACULTY OF ROBOTICS AND MECHATRONICS AT THE AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY / UNIHUT SA

Pavilion 3aStand 69 / MACH-TOOL

Hybrid Parallel Micromanipulator

Hybrid Microrobot with three degrees of freedom (3DOF) built of two types of piezoelectric actuators (rotational and translational). Its workspace is 6200mm^3 . Movement accuracy reaches

180 nanometers, resolution several nanometers. It can be used for high precision tasks i.e.: micromanipulations, micro-assembling, fiber optics, biotechnology and microfactories.

Parallel Microrobot build in SLM technology

Micromanipulator with three translational degrees of freedom (3DOF) built of three stack piezo actuators used for precision micro-manipulation and micro-assembly tasks. The whole construction is made of one piece of material with the use of 3D printing technology (SLM). The workspace is several cubic millimeters with nanometer resolution.

Piezoelectric Microactuator

The microactuator is a combination of piezoelectric stack actuator and mechanism of transfer of movement consisting of titanium flexible joints. It allows operating as a self-sufficient mechanism with one translational degree of freedom (1DOF), maximum stroke up to 0,9mm and resolution reaching several nanometers. The translational movement can be converted into rotational one.

Autonomous flying robot

Unmanned aerial vehicle based on scale helicopter, equipped with autopilot, capable of performing predefined fly trajectory (using onboard GPS receiver) including vertical takeoff and landing. Robot is equipped with gyro stabilized video platform controlled by ground operator's head movement wearing virtual glasses.

Gyro stabilized video platform controlled by virtual glasses

Self-stabilized, wireless, 3 DOF video platform designed for using onboard unmanned aerial vehicles. Three operation modes are available: manual-joystick, manual by using Pocket PC device, automatic by ground operator's head movement wearing virtual glasses. Full HD recordings are available.

Hybrid manipulator for aiding biological experiments

The manipulator is dedicated for micromanipulation of biological cells. The main part of its hybrid construction is a 4DOF parallel macromanipulator equipped with a moving platform being the base for a vision system and a micromanipulator built from flexures and piezoelectric drives. The macroscopic vision system allows for manipulation with resolution of ca. 0.1 μm .

Autonomus mobile robot design to work in the group

The main systems of the 2 wheeled mobile robot are: driving system, control system, sensors and supply unit. Mobile robot is using wireless Wi-Fi technology in order to communicate with the other devices or robots. Robot utilizes Oracle database to store all information about obstacles, clusters and also running history. This multifunctional device can operate in the group of robots.

KOMAG INSTITUTE OF MINING TECHNOLOGY

Pavilion 5, Stand 4 / HAPE

Ld – 31 EM Locomotive

Ld – 31 EM Locomotive is designed to be used in copper ore and coal mines in workings not threatened by methane explosion hazard. The locomotive is supplied from electric traction of 250 V DC. Microprocessor control of speed and travel direction is realized from ergonomic cabin placed in the locomotive centre. During maneuvering operations there is a possibility to control travel direction remotely outside the cabin, when the locomotive is moving with a constant maneuvering speed. Locomotive drive includes two units consisting of: brushless motors with permanent magnets supplied from power-and-electronic transducers.

Lds-100K-EM locomotive

Lds-100K-EM underground diesel locomotive is designed for transportation in the underground of ores, salt and other minerals mines, in rooms not threatened by methane explosion. Low-toxic diesel engine manufactured by Cummins Company with turbocharger and cooler for charging air is used in the driving system.

Lds-100K-EMA locomotive

Lds-100K-EMA underground diesel locomotive is designed for transportation and manoeuvring operations in the underground of coal, ores, salt and other minerals mines, in rooms of "a", "b" and "c" degree of methane explosion hazard and "A" and "B" class of coal dust explosion hazard. Low-toxic diesel engine with turbocharger, equipped with anti-explosion inlet-and-outlet system, is used in a driving system.

PIOMA LDS 80

PIOMA LDS 80 rail locomotive is of three-component construction: the first cabin, engine room with diesel engine and hydraulic system, and the second cabin. These systems are set on two driving cars with a special dual drive, one for left and other for right rail. It enables adjustment of drives (left and right) to a different speed on curves, what eliminates slips of wheels and increases effectiveness of pulling force. Locomotive of unit weight equal to 15t can transport weights up to 150t and can operate on curves of small radius. Maximal speed is close to permissible speed in underground mines and it is equal to 17.2 km/h.

SAO-01 signalling device

SAO-01 signalling device is designed to be used in floor-mounted railway and suspended monorail transportation systems, as well as in light signaling system that warns about conducted operations. It has a supply source in a form of batteries, which are supercharged as mining individual lamps. It has a possibility to start an optical signal in a form of pulsating diodes or simultaneously both optical and acoustic signals at. It can be used in mine workings of "a", "b" and "c" degree of methane explosion hazard and "A" and "B" class of coal dust explosion hazard.

WLP-50EM narrow-gauge surface locomotive

WLP-50EM narrow-gauge surface locomotive is designed for surface transportation in the mining plants and other business entities at the open space. Locomotive frame is of monolithic design and driver's a cabin is a separate module. Low-toxic 4CT107 diesel engine with turbocharger of ANDORIA-MOT Company is used.

Spraying system, especially for air-and-water spraying

Innovative solution of air-and-water spraying system, ensures high effectiveness of dust separation and protection against getting the possible methane ignitions out of the area of roadheader's cutting drum. Due to the use of two-medium air-and-water spraying nozzles, significant reduction of water consumption was achieved and due to the segment design of spraying packs, many different air-and-water spraying configurations around the cutting drum can be obtained.

TELE & RADIO RESEARCH INSTITUTE

Pavilion 5, Stand 44 / METALFORUM

Mupasz 710 and Mupasz 810 Extreme – Heavy Duty Bay Controllers With Power Quality Analysers

Designed to operate in extreme conditions, Mupasz 710 and Mupasz 810 extreme are world-class innovative devices combining the functionalities of a bay controller and a comprehensive power quality analyser. These solutions ensure effective improvement of power quality by solving the issue of providing continuous monitoring in numerous spots along the power network, without the need for periodic application of expensive free-standing quality analysers.

Analysers Enabling the Determination of Polymorphic Carbon Fractions in Carbon-Based Materials, Including Composites

The invention features a unique measurement method employing the phenomenon of selective oxidation of specific carbon fractions in temperatures typical for each fraction. Developed in Tele & Radio Research Institute, this innovative technological solution enables quantitative determination of polymorphic carbon fractions in carbon-based materials used for industrial applications.

TECHNICAL UNIVERSITY OF ŁÓDŹ

Pavilion 3a, Stand 67 / MACH-TOOL

European Centre of Bio- and Nanotechnology in Łódź (ECBNT)

The basic organizational assumption of the ECBNT is to establish the research centre making use of the synergism resulting from the co-operation of university entities and Institutes of the Polish Academy of Sciences. The openness of the ECBNT structure to co-operation with academic and industrial partners is to facilitate constant updating of the research profile and forming of consortia for the execution of specific projects. The designed ECBNT building of 12,000 square meter area will hold 230 scientists to do the research.

GDAŃSK UNIVERSITY OF TECHNOLOGY / The Faculty of Electronics, Telecommunications and Informatics

Pavilion 5, Stand 65

ARPOL – the device to measure gas pollutants in atmospheric air

Ad-hoc network demonstrator for container load monitoring

Impedance spectroscopy analysers suitable for versatile applications

A portable impedance analyser co-operating with the family of probes (three types) for three, four, five clamp measurements. The clamps will adapt the analyser to measure various objects.

The miniature impedance analyser for wireless monitoring the status of elements difficult to reach.

Intelligent pen is the solution designed for children having dyslexia that hampers learning and education. This unit was made as the supplement to the programme package prepared by the YDP SA for the diagnosis and treatment of dyslexia and other co-occurring disorders such as dysgraphia and spelling difficulties (dysortography). The pen is equipped with the sensor detecting excessive muscular pressure that accompanies emotional tension in children during writing.

The use of intelligent pen with a tablet and special control software makes it possible to perform functions recommended by therapists and connected with monitoring and training of muscle memory in children with dysgraphic disorder.

Sight fixation point tracking system - the alternative method of computer control by means of eyeball movements. The camera system tracks eye movements and determines the point of sight fixation on the computer screen.

MOUTH MOUSE is a solution intended for paralysed people, unable to use hands to operate the keyboard and the mouse but capable of moving their lips. This solution makes use of a typical web camera which analyses the picture of the user's head, recognizes face gestures, detects mouth movements. The interface reacts to the mouth opening, sticking out the tongue or forming lips into a characteristic beak. Those three simple gestures can be configured in accordance with the user's

preferences and ascribed to any mouse functions. Advantages: innovative application reading from facial movements, help to disabled people in using the computer, ease of use.

GDAŃSK UNIVERSITY OF TECHNOLOGY / The Chemical Faculty

Pavilion 5, Stand 65

'The method of obtaining emulsifiers - fatty acid esters and polyols modified with metal carboxylates.' The use of versatile modified emulsifiers such as fatty acids and glycerol synthesized from renewable plant material..

Those emulsifiers obtained in the developed microdispersed systems feature programmable hydrophilic and lipophilic properties (required HLB values) and can be used for obtaining oil/water and water/oil emulsions such as face creams, cleansers and other emulsion type products containing various oil phases. We will also present exemplary products of microemulsion type obtained under prepared optimum conditions and featuring required qualitative and quantitative composition.

MOBILE REACTOR SYSTEM WITH THE SPINNING FLUID LAYER

Many chemical processes take place in multiphase systems where the effectiveness of transformation depends on the contact area and mixing intensity. Currently used mass exchange devices, such as barbotage columns and scrubbers, are relatively large size units which considerably increase the investment and operating costs. A lot of processes for reagent recovery and separation can be monitored only in the place of a given technology implementation i.e. in chemical plants or environment cleaning plants. That is why the Department for Chemical Technology in the Gdańsk University of Technology designed and built the mobile cyclone reactor system featuring a broad range of process capabilities, suitable for work under aggressive conditions and elevated temperature. The mobile cyclone reactor has higher efficiency (mass flux) than currently used units both for the fluid and gas phase.

GDAŃSK UNIVERSITY OF TECHNOLOGY/ Faculty of Mechanical Engineering

Pavilion 5 Stand 66

Pump and hydraulic motor development work and operating tests

POZNAŃ UNIVERSITY OF TECHNOLOGY

Pavilion 5, Stand 53

The Faculty of Chemical Technology at Poznan University of Technology

Design of drying processes optimised with respect to the drying time, product quality and energy consumption (spray drying, convective drying, microwave drying, radiation drying, drying under reduced pressure and hybrid drying).

Technologies of production of hydrophilic/hydrophobic systems of nano- and micrometric size (fillers, adsorbents, activators, additives); application of such systems in production of composites, paints, gel electrolytes, etc.

Production of the hybrid materials such as $\text{TiO}_2\text{-SiO}_2$, MgO-SiO_2 , $\text{Na}_2\text{O-Al}_2\text{O}_3\text{-SiO}_2$ and oxides (TiO_2 , SiO_2 , MgO , ZnO) and their characterisation by TG-DTA-DSC, adsorption performance (BET), DLS, NIBS, SEM, TEM, electrokinetics, sedimentation and wettability estimation.

Production of polymer nanocomposites by photopolymerisation on the basis of nanosilicas and other fillers.

Production of solid state polymer electrolytes on the basis of ionic liquids.

Plastic processing by extrusion moulding, injection moulding and pressing.

Comprehensive evaluation of the rheological, structural and mechanical properties of polymers (DSC, FT-IR and WAXS).

Identification of low-molecular compounds and polymers.

Design of methods of recycling and recovery of plastics, including contaminated plastics used by food industry, cosmetic industry and pharmaceutical industry.

Production of polymer composites on the basis of lignocellulosic materials such as wood, natural fibres, shove harl, rape straw and others.

INDUSTRIAL RESEARCH INSTITUTE FOR AUTOMATION AND MEASUREMENTS (PIAP)

Pavilion 5, Stand 15/ TRANSPORTA

A new version of the electronic tachograph for rail vehicles

Electronic tachograph is a device for recording all technical parameters in rail vehicles. Presented new version of tachograph has got widen functionality by possibility of presentation time and distance values, placed in control desk of machine operator. Besides this tachograph can enable graphical presentation of speed values on analog indicator or digital panel (LCD).

Construction Equipment Research Institute Ltd

Pavilion 5, Stand 34

MONTRAKS 6 PS

MONTRAKS 6PS for the Poznań Municipal Transport Company – a special road-rail vehicle intended for assembly and repair of tram overhead contact system. The automotive vehicle has a repair team cab provided with a rotating work platform, covered, insulated and elevated to the height of 6 m. The vehicle has a positioning unit for overhead lines. In the vehicle undercarriage there are bogies for running on the track. The vehicle is CE marked and meets all safety requirements.

University of Warsaw / Creotech Sp. z o.o.

Pavilion 9, Stand 6/ MACH-TOOL

Specialist K30 type CCD camera

The K30 camera developed by the University of Warsaw and Creotech Sp. z o.o. is the most sensitive camera of this type available in the market. The CCD read noise does not exceed 12 electrons. The sensor is mounted in the chamber cooled down to the temperature of 45 degrees below the ambient temperature. The shutter can work for 10^6 cycles. The camera is equipped with the integrated Linux-operated computer.

Armputer Integrated computer system

Armputer is the industrial microcomputer developed in Poland, ARM processor based and using Linux system. The computer can be connected to the Ethernet and GSM modem. Advantages: small size, standard operating system, RS232 output, very low power consumption, SD card reader. Application: industrial process control.

Swimming pool controller

The device is used for controlling the sanitary system of a swimming pool. It enables the control of temperature, chlorine and other chemical and physical parameters essential for swimming pools. The controller has a touch keyboard as well as the screen showing parameters being measured. It makes it possible to schedule the disinfectant dosage. Other applications for similar controllers: waste treatment plants, chemical process flow monitoring systems.

Armcamera

The camera is equipped with the integrated Linux-controlled computer system. The images gathered by the optical module get into the computer unit to be analyzed. The camera is connected with the Internet through the Ethernet port. The exhibited device is equipped with the integrated system recognizing movement and counting objects floating in the field of vision.

mPCI-GSM

The exhibited miniPCI industry-standard card is equipped with the Motorola GSM module. It enables integration of industrial computers equipped with mini PCI ports with cellular telecommunications networks, as well as remote control of computer software.

THE UNIVERSITY OF ECONOMY, BYDGOSZCZ

Pavilion 3A, Stand 77A

An engineer becomes a manager

It is an exceptional in Poland educational system for engineers. A student of engineering courses can study two fields at the same time – the technical field (informatics, mechatronics, production management) as well as the computer science and econometrics field, supplementing his/her competences in the range of economics and management. This innovative solution eliminates the main problem of engineering staff, the insufficient level of competence in the range of economics and management.

SELS-EasyPay - Electronic multifunctional student card system

It is the first in Poland complex solution which integrates an electronic signature, electronic wallet and mobile payments with the Electronic Multifunctional Student Card System and municipal card. EasyPay and SIM Easy Pay systems, produced by Polish Security Printing Works (PWPW), constitute the technological platform of the solution. The University of Economy is the PWPW's partner participating in SELS-EasyPay projects for the University.

YOUNG DIGITAL PLANET SA / GDAŃSK UNIVERSITY OF TECHNOLOGY (The Department of Multimodal Systems)

Pavilion 5, Stand 67

eduSensus Mouth Mouse

An innovative solution offering functionality of a traditional computer mouse, allowing user to perform in a contact-free method. In order to operate user moves his mouth and performs predefined gestures (i.e. mouth opening). Application uses complex algorithms to analyze image gained from a web-cam, and consequently, to monitor the shape and position of the lips. User can operate with the cursor by moving lips in a particular direction, in a similar way as if they were moving a traditional computer mouse by hand.

eduSensus Tablet and Intelligent Pen

Tool that comprises a display monitor equipped with a high-sensitivity touchpad and an intelligent pen - a specially designed writing tool. Both are equipped with sensors which, enable continuous monitoring and correction of certain parameters. This solution allows interesting (play and learn) activities to be performed with kids (i.e learning of proper handling writing tools, basic writing etc).

eduSensus Polysensory Integration multimedia system

Solution allows training by stimulating, selectively one or both brain hemispheres. User performs prescribed exercises, by moving and jumping in the designated area. The system cameras allow for automated monitoring of the user location, determining its therapeutic results. Implemented training integrates the senses of hearing and sight, involving physical movement.

eduSensus EyeTracker

Solution offering i.e. functionality of traditional computer mouse, allowing user to perform it hands-free method, just by looking at monitor. User can operate with the cursor by focusing his sight on a particular field of monitor. Method based on infrared camera and special software.

The main applications for this technique include:

- human-computer interaction (HCI),
- assessing concentration (e.g. possible application in autistic child therapy)
- assistive technology

THE WESTPOMERANIAN UNIVERSITY OF TECHNOLOGY IN SZCZECIN

Pavilion 3a, Stand 36/ MACH-TOOL

OCEAN

The open architecture CNC system for machine tools. This project, the innovation in Europe and worldwide, is an introduction to the research work on developing the prototype of an intelligent machine tool. The project aim is to construct the control system enabling its later development and adding new functions (algorithms of motion control, design of operator interface, allowance for changes in temperature during machining).
