



TRADITIONS OF ENGINEERING

UPEC
INDUSTRIAL
GROUP

TRADITIONS OF ENGINEERING



Honourary President of UPEC
Anatoly Girshfeld

UPEC Industrial Group

One of Ukraine's largest private companies, occupying a leading position in several product segments and in production of components for the largest OEMs in the CIS, unites a number of leading manufacturing companies and engineering centres with more than half a century of history.

UPEC MISSION

- To develop the manufacturing industry as the foundation of economic development of the Company, the region and the country.
- To preserve and multiply superior engineering traditions, herewith integrating into the global technological space.
- To create innovative products, which make us and our customers stronger and the world around us more perfect.

STRATEGIC OBJECTIVE

To create a new generation of globally competitive high-tech products, which will provide sustainable development of the Company and prosperity growth of its personnel.

«OUR VALUES ARE PEOPLE, KNOWLEDGE AND IDEAS»

People

we appreciate decency, loyalty and team spirit

Knowledge

we continuously improve technical level and product quality

Ideas

we create and introduce innovations

UPEC develops and manufactures bearings and electric motors, pumps and CNC grinding machines, transmissions and chassis, air-cycle climate control systems and efficient agricultural machinery, as well as other machinery, equipment, units and components for the railway, automotive, agricultural, general, energy, defense and metallurgical industries.

MANAGEMENT



Honourary President

Anatoliy Girshfeld



General Director

Andrey Chudnovets



Deputy General Director

Sergey Nestrugin



Vice President Sales
and Marketing

Roman Girshfeld



Deputy General Director

Tatiana Khrushcheva



R&D Director
Deputy General Director

Eduard Simson



Technical Director

Nikolay Shcherbets



Financial Director

Olga Prokopenko



Director of Legal Department

Ekaterina Knyazeva



HR Director

Elena Teneta



Director
Railway Division

Victor Gukov



Director
Automotive Division

Sergey Scherbak



General Director
Kharkov Bearing
Plant (HARP)

Vladimir Kokhanov



General Director
Lozova Forging-Mechanical
Plant (LKMZ)

Vasily Chernomaz



General Director
Kharkov Electro-Technical
Plant «Ukrelectromash» (HELZ)

Gennadiy Mitrokhin



General Director
Oskol Bearing
Plant HARP

Oleg Kuskin



Director of Machine-Tool
Building Division

Nikolay Chizhikov



Director of Special Vehicles
Division

Valeriy Kotikov



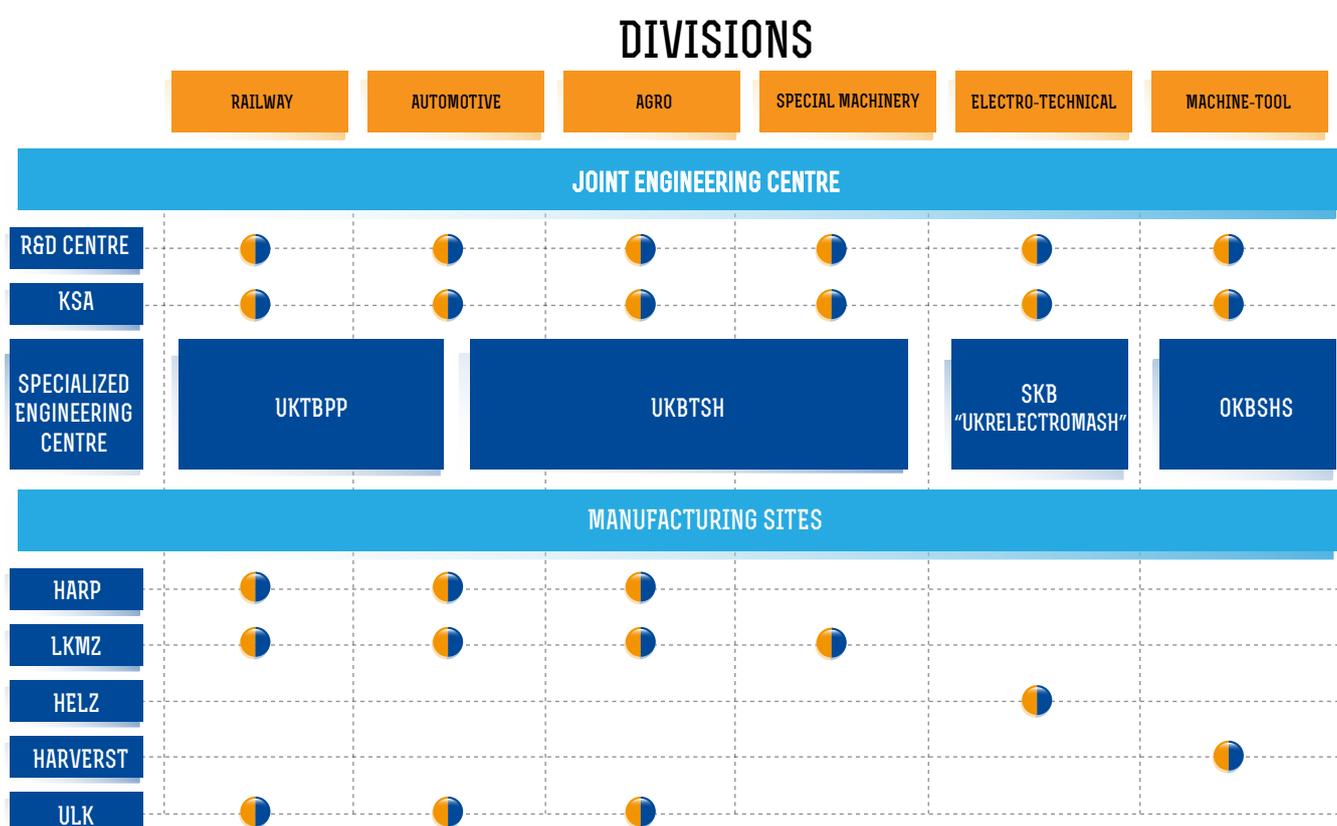
Director
Transservis, Ltd.

Leonid Segal

CUSTOMER-FOCUSED STRATEGY AND COMPANY STRUCTURE

BECOMING MORE SUCCESSFUL TOGETHER WITH THE CUSTOMER

The products of the UPEC Industrial Group are presented on the market by the divisions: Railway, Automotive, Electro-Technical, Machine-Tool and Agricultural. There are plans in place to establish an Industrial Division, a Special Machinery Division and a Division of Renewable Energy.



Each division offers consolidated product supply from all the companies of the Industrial Group, which can be used in this market segment.

Our divisional structure allows us to meet the needs of our customers to the fullest extent, as we are able to focus all of the Industrial Group's engineering, manufacturing and marketing resources on the task set by the customer.



THE RAILWAY DIVISION

Supplies components for the production and maintenance of rolling stock to companies and railways of the CIS countries («1520 Space»), coordinates the development and introduction of new products for railway transport, provides services to the developed products.



THE AUTOMOTIVE DIVISION

Provides a wide range of products – bearings, forgings, castings, components, complex units and assemblies for automotive industry manufacturers, engine builders, agricultural and transport machinery producers. It also supplies components and units to the aftermarket.



SPECIAL VEHICLES DIVISION

Division is engaged in manufacture of special vehicles and modernization of hulls of the military armored vehicles of various modifications: linear and commander's, command and repair vehicles, medical, armored vehicle «v» and many others.



THE MACHINE-TOOL DIVISION

Supplies a wide range of roll and cylindrical grinding machines for virtually all branches of industry, including metallurgy, aircraft construction, heavy and medium engineering, automotive and engine construction, etc. Performs deep machine up-grade on the clients' request.



THE ELECTRO-TECHNICAL DIVISION

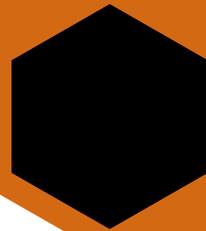
Offers electric motors of general and special purposes, including high-speed, explosion-proof, low-noise and low-magnetic motors for the defense industry, generators, a wide range of electric pumps and compressors, as well as other aggregated devices integrated with electric drive. Coordinates the development and creation of new products, as well as integration of manufacturing with the leading European and Asian electrotechnical companies.



THE AGRICULTURAL DIVISION

Provides complex support to the agricultural manufacturers and operators with modern equipment. Supplies high-performance and energy-efficient machinery for modern resource-saving tillage technologies, spare parts for agricultural machinery; warranty, post-warranty and out-of-warranty services for agricultural machinery.

RESEARCH AND DEVELOPMENT



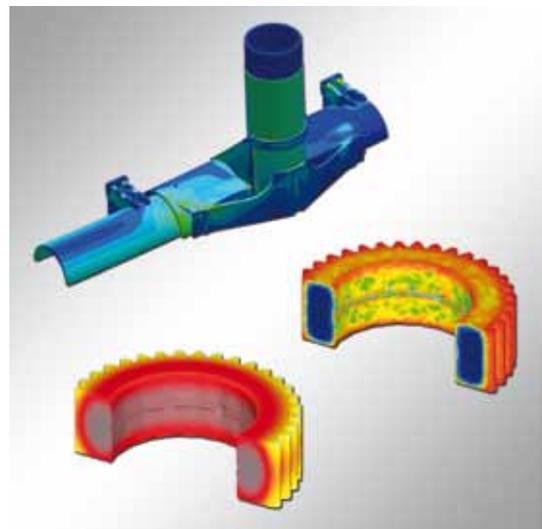
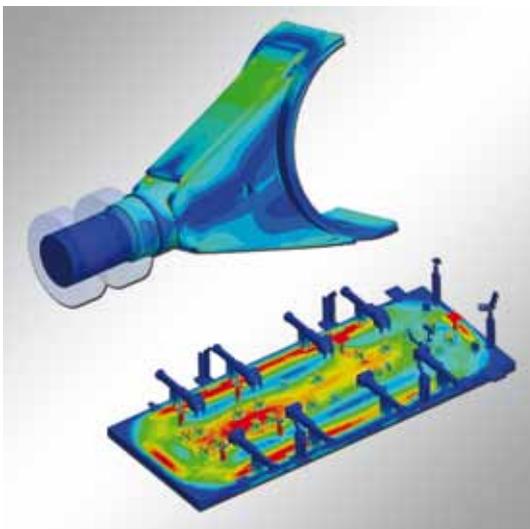
INTELLECT EMBODIED IN METAL

The Joint Engineering Centre (JEC) was established to implement the UPEC Industrial Group's new strategy, focused on the priority of engineering knowledge, development and manufacture of innovative products with a high intellectual level and, as a result, high value added.

The UPEC JEC generates know-how for the company and centers its intellectual property.

The Centre is equipped with advanced software systems, knowledge bases, while the JEC staff, most of whom are Doctors and Candidates of Science, have unique experience in conducting sophisticated research for aerospace and defense industries, energy and transport engineering, as well as other sectors of the economy. The UPEC JEC performs the most

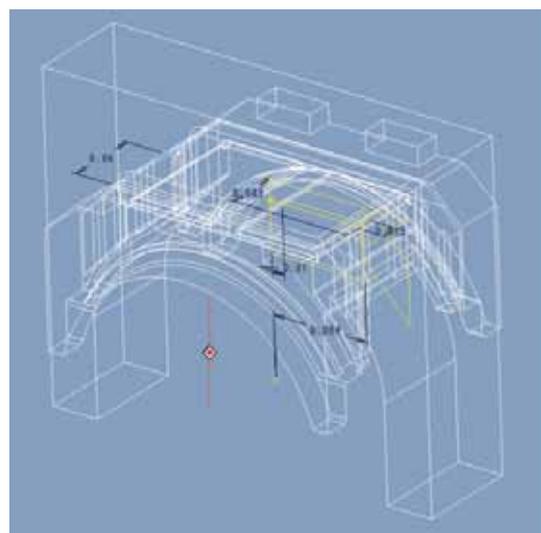
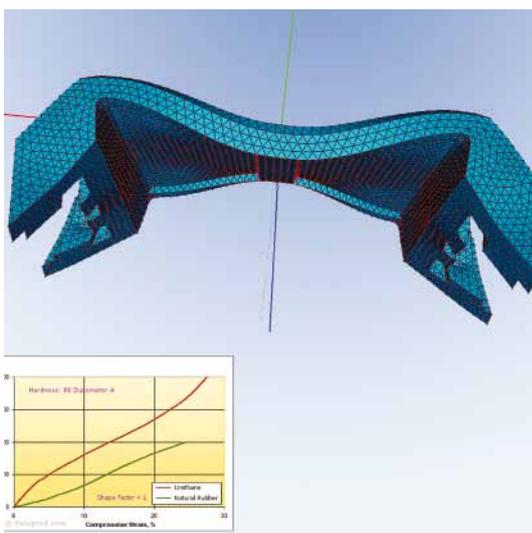
complicated calculations and studies, mathematical simulation and optimal design for all of the Industrial Group's product areas, together with the UPEC's specialized engineering centres it takes designs to the prototype stage, simulates and optimizes basic technological processes; in cooperation with the leading European companies it develops new technologies and accompanies supply of the latest hi-tech equipment.



The motto of the UPEC JEC — «intellect embodied in metal» — perfectly reflects the dual overall challenge, which is to carry out fundamental and applied research on mathematical and physical models, and further to embody the results of these studies into new designs and technological developments brought into mass production.

THE JEC STRUCTURE INCLUDES:

- The Centre for Mathematical Simulation of Designs and Technological Processes and for Optimal Design of Machine Parts and Assemblies (R&D Centre);
- The Centre for Integrated Engineering Automation (implementation of the largest project of integrated electronic environment management of design and technological developments in Eastern Europe and the CIS based on the PTC software platform, the USA);
- The Group for intellectual property management, technology transfer and outsourcing with the leading international engineering companies;
- The Ukrainian Bearing Industry Design and Technology Bureau (UKTBPP);
- The Ukrainian Transmission and Chassis Design Bureau (UKBTSh);
- The Experimental Design Bureau for Grinding Machines (OKBShS);
- The Special Design Bureau for Electrical Engineering (SKB «Ukrelectromash»);
- The Air Turbo Technology Department (Engineering Centre ATT);
- The Department of Hydrostatic and Hybrid Transmissions.



INTERNATIONAL PARTNERSHIP IN RESEARCH AND DEVELOPMENT

The JEC and specialized engineering centres will only take on the development of a new product if UPEC in its entirety holds the «controlling interest» of knowledge and fundamental technology required to create a product at the highest technical level and to ensure its competitive strength.

Due to the significant level of its fundamental research and applied development, the UPEC JEC gained wide international popularity. At the same time the JEC regularly attracts leading European engineering companies for outsourcing to develop separate units and technologies. In the Railway Division, approximately 30 leading engineering companies are involved in strategic developments of the JEC. Two projects of the UPEC JEC, UKTBPP and ATT received the status of the world's premier at InnoTrans 2012, the largest railway exhibition.

PARTNERS:

- Klüber Lubrication
- Simrit (Freudenberg Group)
- Beckhoff Automation
- Blumenbecker
- NAGEL
- MODLER
- Meccanica Nova
- EFD Induction
- VLF
- Massucco Industrie
- Hot Roll (FOMAS Group)
- HYDROMA
- ROBOTERM
- ProTechnology
- VNIIZhT
- VNIIPP
- and others

SPECIALIZED ENGINEERING CENTRES



Chief Designer
UKTBPP
Sergey Semykin

UKRAINIAN BEARING INDUSTRY DESIGN AND TECHNOLOGY BUREAU (UKTBPP)

UKTBPP specializes in the design of rolling bearings. The developed products meet requirements of the international ISO standards. UKTBPP is Ukraine's leading engineering company in the bearing industry. Since 2008, UKTBPP has been working on the order from the Ukrainian Ministry of Industrial Policy for the development of new national standards and normative documentation for bearing products.



Chief Designer
UKBTSh
Alexey Grynenko

UKRAINIAN TRANSMISSION AND CHASSIS DESIGN BUREAU (UKBTSh)

UKBTSh develops agricultural machines and tools for the optimal land cultivation, aiming to provide farmers with a full range of tillage machinery. UKBTSh also develops parts for transmissions and chassis, including a new line of axles for a wide range of construction machinery, as well as for automobiles, tractors and special machinery.

The JEC together with the Department of Hybrid Transmissions is working on an innovative project for the optimal design of continuously variable hydrostatic-mechanical transmissions for a new generation of automobiles and tractors.



Director
OKBShS
Vladimir Kaidalov

EXPERIMENTAL DESIGN BUREAU FOR GRINDING MACHINES (OKBShS)

OKBShS specializes in the design of modern CNC roll and cylindrical grinding machines for various purposes with broadly varied dimensions and weights of the handling parts, as well as in the development of new and upgrade of existing machinery previously manufactured by the Kharkov Machine-Tool Plant and by factories in Russia and Germany. The bureau designs and upgrades special grinding machines for the bearing industry.



Director
Air Turbo Technology Department
Vartan Petrosyants

AIR TURBO TECHNOLOGY DEPARTMENT (ATT)

ATT develops and launches mass production of a completely new generation of refrigerant-free energy-efficient environmentally friendly climate control technology, electric turbo compressors and other renewable heat equipment for industry, transport, trade, construction, etc.



General Director
SKB «Ukrelectromash»
Alexander Kolesnikov

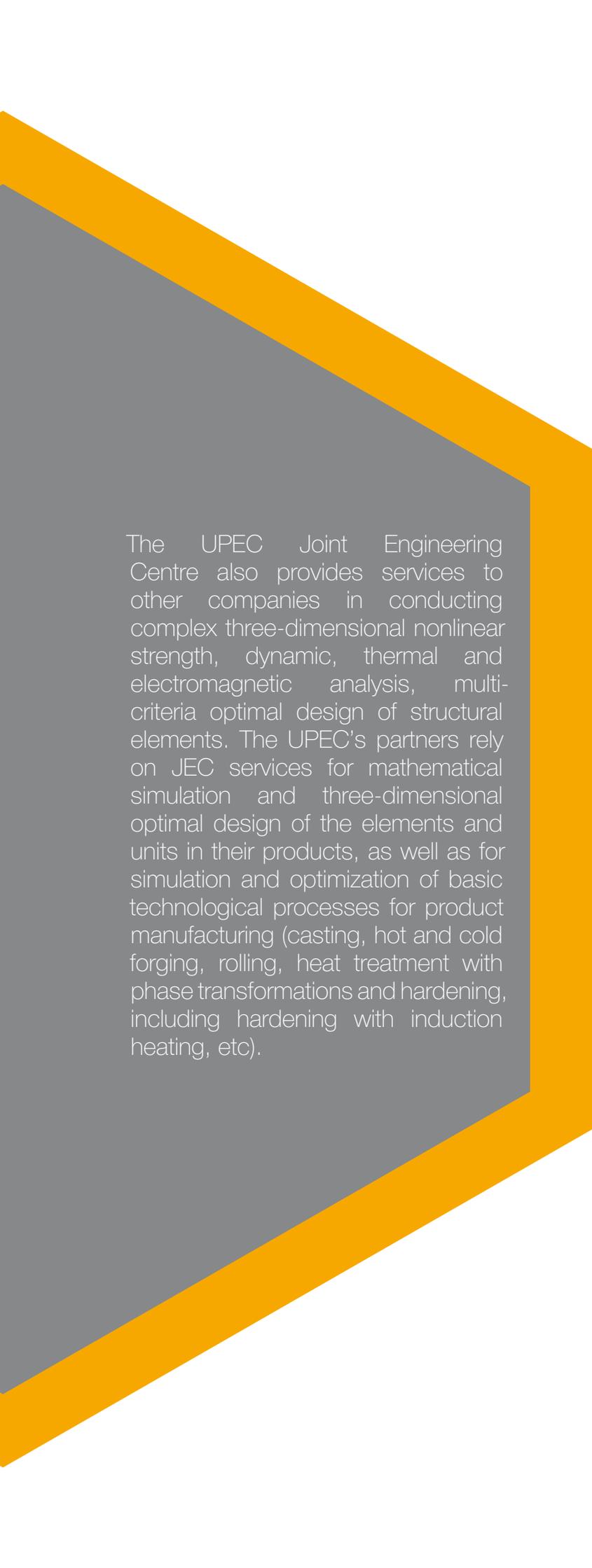
SPECIAL DESIGN BUREAU «UKRELECTROMASH» (SKB)

Ukraine's leading developer of small and medium-sized industrial and special electric motors, generators, electric pumps and other aggregated devices. SKB provides design support for large-scale HELZ (Ukrelectromash) production, modernization of its production lines and extension of the product range. SKB «Ukrelectromash» is also a designer and a manufacturer of unique low-noise and low-magnetic special-purpose electric motors.

UPEC STRATEGIC INNOVATION PROJECTS

- Development and industrial production of new generation energy-efficient cartridge type bearings CRU Duplex and TBU 1520, with an extended service life, for railway transport in Russia and the «1520 Space»
- Creation of new generation energy-efficient, completely eco-friendly refrigerant-free climate control systems operating on turbo compressor air cycle
- Development and industrial production of new generation roll grinders and heavy duty cylindrical grinding machines, offering multi-level feedback and an integrated CNC system with the elements of artificial intelligence
- Development and creation of hybrid hydrostatic-mechanical transmissions for the new generation tractors (up to 350 HP) and other equipment
- Development of a full line of innovative tillage and sowing machinery for energy-saving cultivation technologies basing on the climate and soil features of Ukraine, the Russian Federation and Kazakhstan.

The company's innovation activity is coordinated by the Research and Technical Council, headed by Mr. Anatoliy Girshfeld, President of the UPEC Industrial Group, Corresponding Member of the Engineering Academy of Ukraine. The company's scientists, engineers and top-level managers, participating in the Council, determine the priority areas for the scientific, technical and investment policy of the Industrial Group.



The UPEC Joint Engineering Centre also provides services to other companies in conducting complex three-dimensional nonlinear strength, dynamic, thermal and electromagnetic analysis, multi-criteria optimal design of structural elements. The UPEC's partners rely on JEC services for mathematical simulation and three-dimensional optimal design of the elements and units in their products, as well as for simulation and optimization of basic technological processes for product manufacturing (casting, hot and cold forging, rolling, heat treatment with phase transformations and hardening, including hardening with induction heating, etc).

Since 2008, UPEC has been implementing a unique KSA 2008 project — automation of all design, technological, research and managing engineering activity based on the integrated PTC software platform (the USA).

An up-to-date integral CAD/CAM/CAE/PDM/PLM system was created within the project, which allowed to manage all new products and other projects within the project management in the unified information environment based on Windchill software product, as well as to equip over 500 working places of designers, engineers and other members of the «project teams» with advanced calculating resources.

The main advantages, gained by the UPEC Industrial Group, are the following: enhanced precision and product design quality, as all the works are done in the unified environment – from a design 3D-model to manufacturing technology; efficiency growth and shortened preparation time for the design and technological documentation; significant cost reduction of the preproduction in general. All activities of the Industrial Group are involved in optimized and «coded» in KSA-2008 business processes.

KHARKOV BEARING PLANT (HARP)



WWW.HARP.UA

Over decades of the Soviet history, the **Kharkov Bearing Plant HARP** (formerly GPZ-8) was the USSR's leading company in the design and development of new types of bearing products and served as an experimental base for the leading research institutions and design bureaus of the bearing industry, in particular, – VNIIPP, VNIIZhT/Project and Design Bureau of All-Russian Railway Research Institute, and others. Most designs and new technologies, following their development by GPZ-8, were subsequently introduced into other USSR's bearing plants.

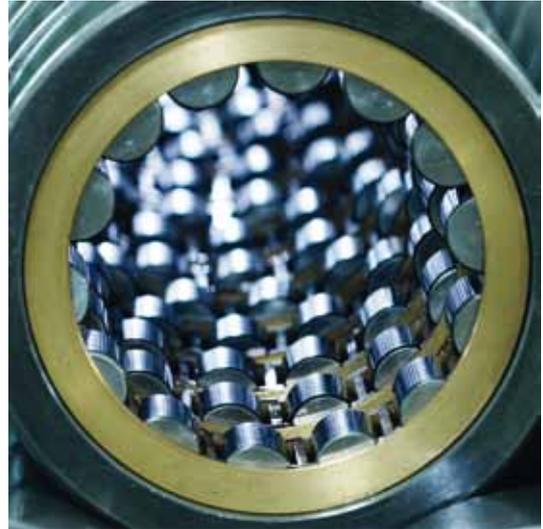
Today HARP holds leading positions in the production of railway bearing units for the entire «1520 Space» and bearings for some market segments in the CIS: agricultural machinery, electrical engineering, automotive industry, mining and metallurgical complex and others.

The Kharkov Bearing Plant manufactures over 500 types of bearings with outer diameter from 30 to 400 mm under the HARP, HARP-AGRO, HARP-AUTO trademarks, as well as hot-forged and cold-rolled semi-finished products and components for automotive, railway and industrial bearings.

The company is ISO 9001:2008 and ISO/TS 16949:2009 certified and holds an SKF approval certificate for a number of technological processes.

Recently HARP has commenced the process of certification according to the International Railway Industry Standard (IRIS) and the ISO 14001:2004 environmental management standard.





Over recent years, HARP has taken to mass production a new generation of energy-efficient «cartridge» bearing products with extended maintenance intervals (at least 800 000 km), improved internal design, micro-geometry and heat treatment, special greases and seals designed for the operating conditions of the «1520 Space»:

- **CRU Duplex** cylindrical unit for standard railway cars with axle load of 23.5 tonforces and pedestal opening of 320 mm.
- **TBU 1520** tapered unit for railway cars with extended load capacity and pedestal opening of 260 mm.

The new product line (CRU Duplex, TBU 1520 and CRB HARP), unlike other known bearing units, has been originally designed and modified for the very specific operating conditions of the «1520 space».

The first investment project is currently being carried out for the international localization of the production of HARP — «Oskol Bearing Plant HARP» (the Russian Federation). The new company has been established to produce only new generations of bearing products using modern technological processes. The project implementation involves over \$30 million.

The UPEC Industrial Group, together with its JEC, UKTBPP and HARP, is the only CIS-based local developer and manufacturer of new bearing products.

LOZOVA FORGING-MECHANICAL PLANT (LKMZ)



WWW.LKMZ.COM

The **Lozova Forging-Mechanical Plant (LKMZ)** is the largest manufacturer of cold- and hot-forged components in Ukraine and the CIS, as well as transmissions, armoured vehicles and trailed agricultural machinery.

LKMZ specializes in the high-volume production of about 500 different forgings for railway transport, tractor, automotive and agricultural machinery.

The Plant is the leading manufacturer of complex-shaped and high-precision forgings, grader tandem axles, components of transmissions and chassis for tractors and road-building machinery, as well as axles for buses, components and units for tractors and railway rolling stock. It is the largest Ukrainian manufacturer of hulls and transmissions for light armoured vehicles.

Applying of the unique technology makes it possible to produce parts in non-standard shapes with a high level of precision and reduced steel consumption.

In recent years, the company has successfully completed the development of mass production of a new line of tillage equipment for modern energy-efficient and soil-preserving agriculture.

The company has introduced the ISO 9001:2008 quality management system. The Lozova Forging-Mechanical Plant is an official supplier of components for SKF.



KHARKOV ELECTRO-TECHNICAL PLANT «UKRELECTROMASH» (HELZ)



WWW.HELZ.UA

The **Kharkov Electro-Technical Plant (HELZ) «Ukrelectromash»** is Ukraine's largest manufacturer of electric motors, generators, a wide range of electric pumps and other machinery integrated with electric drive under the HELZ trademark, known for the combination of efficient technical solutions and optimal price/quality ratio.

The company manufactures over 5 thousand structural, electrical, climate and specially designed electric motors for a wide range of electric drives and packaged devices for various industry branches, public utilities, energy, mining, metallurgy and agrarian complex.

Another area of HELZ activity is the production of household electric pumps and feed cutters, including centrifugal surface, submersible drain, borehole pumps and automatic working pressure systems, as well as electric mills and feed cutters.

Currently, the UPEC's Electro-Technical Division, which includes HELZ and SKB «Ukrelectromash», is undertaking a project for mass production restructuring, based on international outsourcing of the components for electric motors. The project is focused on the establishment of joint ventures in Ukraine and Russia for the assembly of a new range of IEC and GOST-standard electric motors, as well as motor gearboxes, pumps and other machinery, integrated with electric drives.



KHARKOV MACHINE-TOOL PLANT (HARVERST)



WWW.HARVERST.COM.UA

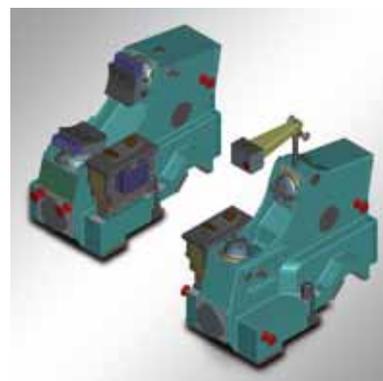
The **Kharkov Machine-Tool Plant (Harverst)** is the largest in the CIS manufacturer of roll and cylindrical grinding machines, as well as specialized grinders for the bearing industry.

The highly skilled personnel of the plant and the OKBShS Engineering Centre conduct machining, subassembly, as well as machine and CNC adjustment. Castings of complex machine-tool structural parts and steel billets are manufactured for Harverst in cooperation with the other companies of the UPEC Industrial Group.

As for the rest, the company offers the complete production cycle for parts and units of all of its products, including heat and galvanic treatment to meet the requirements for mechanical strength and durability of the parts; welding; machining; finishing operations; adjustment of drives and control systems, etc.

The unique technology and equipment allow Harverst to handle parts with a wide range of dimension and weight characteristics: from tiny parts weighing only a few grams to the giant ones with diameter of up to two metres, length of 16 metres and weight of up to 125 tons and, in all cases, with precision down to the micron.

In 2012 Harverst together with the Engineering Centre OKBShS launched the production of new generation roll grinding machines, offering high performance and accuracy, equipped with devices for active monitoring and integrated management systems, based on the most advanced CNC systems. The Company is ISO 9001:2008 certified.



UKRAINIAN CASTING COMPANY(ULK)



WWW.UCCO.COM.UA

The **Ukrainian Casting Company (ULK)** is one of the largest Ukrainian manufacturers of precision steel and iron casting for the railway, automotive, machine-tool and agricultural industries.

The company has purchased and introduced new high-tech steel and molding capacities, making it possible to produce high-precision iron castings weighing from 5 kg up to 3 tons, as well as to manufacture bed frames weighing up to 6 tons.

For the railway industry ULK casts the body of axle boxes, adapters, PMKP-110 draft gears, front and back stops, coupling yokes, etc. The company is now developing auto-coupling production.

The company is implementing a strategic investment project for the equipment purchase and development of the new technologies for medium casting.

The Ukrainian Casting Company is certified according to the ISO 9001:2008 quality management system.



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