CZECH MACHINE TOOLS AND FORMING MACHINES

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European Patent for Czech Machine Tool

CKD Blansko Holding – Modern Engineering with Tradition

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Dear Readers,

This time, the supplement to the Czech Business and Trade Magazine is devoted to machine tools and forming machines, a sector responsible for an important part of Czech engineering production.

The manufacture of machine tools in today’s Czech Republic has a tradition of nearly 150 years. Trademarks such as TOS, MAS, ŠKODA, ZPS, and ŽĎAS are known all over the world. The Czech machine tool and forming machine industry has successfully undergone a transformation process, and it now ranks among the top ten European countries in terms of the volume of production. On the world scale, too, its position among the world’s first fifteen manufacturers in the branch is an undeniable success. The share of machine tool and forming machine production in relation to the Czech Republic’s GDP ranks this country among advanced engineering economies. The tradition of the Czech machine tool and forming machine industry is further highlighted by superior quality, and in a number of cases by unique design and construction.

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The machine tool and forming machine sector forms the basis of the Czech Republic’s industry as a whole. With its products it influences all other areas in the framework of the country’s national economy and is the driving force of growth of labour productivity and a source of added value.

In recent years, the sector has been showing a distinct upward trend, with its performance, productivity and competitiveness growing steadily.

The machine tool and forming machine sector comprises a very wide range of equipment indispensable for all types of investments in production technology.

Manufacture of Machine Tools and Forming Machines
In 2007, the manufacture of machine tools and forming machines in the Czech Republic was worth EUR 495.822 million. The manufacture of machine tools in that year was worth EUR 462.323 million, with a 35.6% year-on-year growth, with the manufacture of forming machines amounting to EUR 33.499 million and with a 2.7% year-on-year growth. The total output of machine tools and forming machines in 2007 was 32.7% up on the previous year.

Consumption of Machine Tools and Forming Machines in the Czech Republic
In 2007, the consumption of machine tools and forming machines in the Czech Republic amounted to EUR 454.769 million. The consumption of machine tools in that year totalled EUR 317.913 million, with a 38.6% year-on-year growth, and that of forming machines EUR 136.856 million, with a 4.8%
year-on-year growth. The total growth of machine tool and forming machine consumption in 2007 was 26.3% up on the previous year.

Exports of Machine Tools and Forming Machines
Czech exports of machine tools and forming machines in 2007 were worth EUR 491.525 million. The export of machine tools in that year was worth EUR 446.337 million, with a 25.4% year-on-year growth, and that of forming machines EUR 45.188 million, 31.4% up on the previous year. Total machine tool and forming machine exports in 2007 were 25.9% higher than in the previous year.

Imports of Machine Tools and Forming Machines
In 2007, the Czech Republic imported EUR 450.475 million worth of machine tools and forming machines, 19.6% more than in the previous year. Machine tool import in that year amounted to EUR 301.927 million, with a 23.5% year-on-year growth, and the import of forming machines totalled EUR 148.548 million, 12.2% more than in the previous year.

Exports of Machine Tools and Forming Machines by Territory
Czech exports to Russia are growing significantly. In 2007, they rose by EUR 31.085 million in comparison with the previous year. The Czech Republic’s other important export territories are China, which increased its imports from the Czech Republic by EUR 14.912 million in comparison with the previous year, and Poland, which took EUR 8.392 million worth of goods more than in the previous year.

Imports of Machine Tools and Forming Machines by Territory
A significant feature is the growth of imports from Germany into the Czech Republic, which rose by EUR 23.701 million in comparison with the previous year. Imports from Japan, too, increased significantly and rose by EUR 31.121 million in comparison with the previous year. South Korea is another country, from which the Czech Republic in 2007 imported EUR 9.509 million worth of goods more than in the previous year.

International Comparisons and Competitiveness
Machine tools and forming machines have a long tradition in the Czech Republic, which, in addition to manufacturing them, is known for the export of whole plant. Since 2000, the volume of its exports to EU states has been showing a steadily rising trend. The comparison of results within CEFTA, where it occupies a leading position in terms of its share of CEFTA exports to the EU, also testifies in Czech Republic’s favour, which is evidence of the continuing good competitiveness of Czech products.

The competitiveness of the sector must be secured by the continuously improving technical standard of final products, technologies, and pre-production stages, the consistent monitoring of quality, prompt reaction to the customer’s requirements, comprehensiveness of deliveries, prompt service and the overall reliability of the firm.
EU Support for Machine Tool Research and Development

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Competitive engineering, an important part of which is the research and development of new machines, is one of seven long-term basic priorities of the Czech Republic in the area of research and development. Support to private companies in the Czech Republic for the research and development of machine tools from public funds is provided primarily by the Ministry of Industry and Trade.

IMPULSE and TANDEM Programmes
Two national programmes of support for industrial research and development, named IMPULSE and TANDEM, to be terminated in 2010, were approved even before the Czech Republic joined the European Union. Benefiting under these national programmes, in addition to machine tool manufacturers, were their Czech partners participating in the development of new machines, such as research institutions, universities, etc. The year 2007 was the deadline for applications to obtain subsidies under these programmes for projects to be completed in 2010. At the end of 2008, the Ministry of Industry and Trade will launch a new programme, Technologies, Innovation Systems, Products (TIP), which will replace the previous two programmes. Projects selected for financing under the new programme can be started in 2009. Applications for subsidies may be filed every year within the fixed deadline until the year 2014. The last projects will have to be terminated by 2017. The maximum duration of the projects will be four years and the amount of the subsidy will be based on current legislation regulating the granting of subsidies for research and development (currently 25% to 100%). Judging by past experience, it is to be expected that support will be given to the research and development of new products showing novel features and assuring practical results, i.e. an adequate rate of return on the subsidy granted. Subsidies are therefore likely to focus on operating costs linked with research and development (personnel costs, overheads, material, services, travelling expenses, etc.), although investment expenditure will no doubt also be eligible for partial financial support (only in relation to the project concerned and the use of the subsidised investments for the solution of the project).

EU Structural Funds
EU structural funds, from which entities in the Czech Republic can draw money through operating programmes, also provide for subsidising the development of machine tools. In its Business and Innovation Operating Programme, the Ministry of Industry and Trade has prepared and announced a sub-programme called POTENTIAL, under which support is given to the construction or enlargement of the infrastructure (equipment, instruments, etc.) for industrial development. In this case, the subsidy is to help cover investment costs, so that the subsidised projects will make it possible for enterprises to develop new products and technologies on the subsidised equipment.

Support of Investment and Operating Projects
A suitable combination of the two programmes mentioned above will make it possible to obtain subsidies for development projects in the area of both investment and operation. In addition, other complementary programmes can be used, for example, for the development or training of research and development workers. While the above-mentioned support programmes are managed by the Ministry of Industry and Trade and applications can be filed by business entities registered in the Czech Republic, Czech business entities also may seek subsidies under EU programmes, where an international research consortium needs to be set up to solve development projects. The most useful European programmes for the development of machine tools are the Seventh EU Framework Programme and the EUREKA programme. Both programmes have specific rules and conditions governing the granting of subsidies.
Engineering is a promising sector for foreign investors wishing to invest in the Czech Republic. Thanks to the long engineering tradition in Bohemia, foreign as well as domestic investors can find in this country experienced, highly skilled specialists, capable of making maximum use of the most advanced technologies. The resulting competitive advantages offered by the country are therefore better quality of work, lower percentage of waste and lower cost of additional training.

Through its history, CzechInvest has helped to mediate 143 new engineering enterprises for the Czech Republic.

Engineering Companies in the Czech Republic
Most Czech engineering companies are small and medium-sized enterprises. They often have a similar history of their inception. They came into being by breaking away from the disintegrating engineering colossi in the early 1990s. There are some one thousand companies engaged in engineering, in addition to some fifty larger enterprises concerned with the manufacture of engineering equipment and accessories. They are scattered evenly throughout the Czech Republic. Most enterprises make small-scale deliveries of a maximum of several hundred pieces, marked by top quality.

Manufacture and Exports Are Growing
Czech engineering exports are dominated by machines and transport equipment, which account for 54% of the sector's total exports. It is much to the credit of these exports that in 2007 the Czech Republic showed a record EUR 3.7 billion foreign trade surplus. The most important partner of the Czech Republic in engineering trade is Germany, which takes 28% of Czech engineering production. Following next are Slovakia, Russia, and China.

The Czech Republic exports about 80% of its output of machine tools and, in terms of production and exports, it is the world's 14th largest manufacturer of machines and the seventh largest in Europe. Since 1994, Czech engineering exports have been growing steadily, at an annual rate of around 12%.

Most Attractive Country for Investors
The Czech Republic is an open export-oriented economy and, owing to its geographic position in the very centre of Europe, the country offers an ideal hinterland for domestic and foreign investors. For example, according to a survey carried out by Ernst & Young, the Czech Republic is the world's tenth most attractive country for investors.

PricewaterhouseCoopers, in turn, forecasts that in the next few years the Czech Republic will experience the highest per capita flow in Central Europe of direct foreign investment into the country. In 2007, CzechInvest alone mediated 182 investment projects for the Czech Republic to the total value of more than EUR 2.9 billion. More than 50% of these investments are accounted for by the expansion of companies already operating in the Czech Republic. Among the largest in 2007 were the expansion of the Foxconn electronic company to Kutná Hora, the Mora Aerospace company, based in the Olomouc region, which manufactures components for aircraft engines, and Aufeer Design, originally a Czech company, which is enlarging its design centre for the automobile industry in Mladá Boleslav.

Investments in Research, Development, and Strategic Centres
About 25% of all projects mediated by CzechInvest for the Czech Republic in recent years are the most valuable investments into research and development or strategic business services. Altogether nineteen specialised centres for engineering have been set up in the Czech Republic with CzechInvest's support. Those established in 2007 include ZF Engineering in Pízner, APV Invensys in South Moravia and Czech SOMA in Brno and Lanškroun. Engineering is one of the industrial sectors that attract the highest share of investment into the development of new technologies or into service administration in the Czech Republic.
The creation of the single European market area opens up new opportunities for the engineering profession. The growing internationalisation of the clientele stimulates the establishment of subsidiaries in other countries, which is accompanied by growing demand for university-trained engineers having good technical knowledge combined with intercultural competences, good language skills, and the ability to become integrated into international teams.

International Co-operation
The Faculty of Mechanical Engineering, Brno University of Technology, has for twelve years co-operated intensively in the area of machine tools and forming machines, for example, with the Chemnitz University of Technology, where a number of its students have studied for at least one year. A quarter of them have mastered the German language so well that after passing the DSH (Deutsche Sprachprüfung für den Hochschulzugang) language test, they could write and defend their thesis at the Chemnitz University.

In 2008, the two universities will submit a new joint study programme for accreditation, with a double diploma in the area of “Production Systems”. This means that during one course of study they will be able to obtain two internationally acknowledged diplomas on the basis of just one thesis, which they will defend before a joint Czech-German commission.

The Brno Faculty of Mechanical Engineering also co-operates with the University in Chemnitz on a scientific and research programme. Its doctorands attend courses at the Chemnitz Technical University and the Fraunhofer Institut Werkzeugmaschinen und Umformtechnik under a research fellowship arrangement, and they participate in research work on projects together with their German colleagues.

During the more than ten years of co-operation with a partner who enjoys world renown in the development of machine tools and forming machines, academics, doctorands, and students from Brno have exchanged valuable information and experience with their German partners. Moreover, in 2008, the Brno Faculty of Mechanical Engineering, the only one in the Czech Republic, became a corporate member of the International Academy of Manufacturing Engineering known as CIRP (College International pour la Recherche en Productique), which associates more than 550 members from 41 countries.

Co-operation with Private Companies
Equally important is the Faculty’s involvement in the development of manufacturing technologies, such as the development of technology for the manufacture of a new generation of shearing, cutting, and pressing tools. This has created a firm basis for the Faculty’s co-operation with the private sector. Besides construction and development work for the private sector it has been engaged, since 2003, in the area of risk assessment and safety of machine tools and forming machines in the framework of the Research Centre of Manufacturing Technology. The Faculty’s researchers had the opportunity to compare their level of knowledge with European standards during a course of study at TÜV Österreich Akademie, at the end of which, after passing a certification examination, they were awarded the “Ausbildung zum Risikomanager” certificate. For their industrial partners they have made a number of construction projects and independent risk and safety analyses, especially as regards machine tools.

What Are the Benefits of Co-operation with the Private Sector?
One of the advantages of co-operation with the private sector is that the Faculty’s laboratories are fitted with better equipment. As a result, students now can use the modern four-axes two-spindle machining centre SPY 280CNC/Sinumerik 840D with built-in Shopturn (MAS Kovosvit, a.s., Sezimovo Ústí). The machine is intended for four-axes continuous programming and multioperation service (machining, milling, drilling, threading, etc.) using two synchronised headstocks. They also have the use of a CNC centre MCV 1210 (TAJMAC-ZPS, a.s., Zlín), a basis for continuous five-axes CNC machining by means of the Sinumerik 840D system (Siemens s.r.o. A&D) and for the manufacture of different shapes – pump and turbine blades, parts of aircraft, etc.

In addition to instruction and research, the holding of seminars and conferences, this equipment is also widely used in lifelong education courses.
CKD Blansko Holding – Modern Engineering with Tradition

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CKD Blansko Holding, a.s. has taken up the more than 300-year-long tradition of engineering production in the Blansko region. Today, it is a modern company with high technical skills and quality standards appreciated by its customers all over the world. CKD Blansko Holding is formed by the divisions of Hydro, Machine Tools (Heavy-Duty Vertical Lathes), Wind, and Machine Works.

**Hydro Division’s Manufacturing Programme**
The quality of the Division’s products benefits from the more than a century-old history of its specialisation in the manufacture of hydraulic turbines and hydro-technical equipment. The division manufactures turbines for both large and small hydroelectric power stations. Products of the Hydro division are popular in the Czech Republic and Slovakia and are also exported to Scandinavia, Poland, and other countries.

**Machine Tools Division’s Manufacturing Programme (Heavy-Duty Vertical Lathes)**
Since 1951, an important sphere of CKD Blansko’s business activities has been the manufacture of heavy-duty vertical lathes. The company uses these lathes itself in machining rotating parts of water turbines, which adds significantly to their reliability and service life, and to the company’s gaining experience and knowledge for their further development. Since it started specialising in machine tool manufacture, CKD Blansko has exported more than 720 boring and turning mills to 30 countries worldwide, its main export territories being Russia, the Ukraine, Germany, France, and Japan.

**The Wind Division’s Manufacturing Programme**
In co-operation with Finland’s WinWinD, CKD Blansko also supplies complete 1 MW and 3 MW wind-power plants, ready to operate. The power plant’s turbines use the advanced Multibrid® technology. The main advantage of this technology is its high operating reliability and easier maintenance. The plant is fitted with an automatic control system, which controls the generator and the network and optimises the energy output according to prevailing wind conditions. The plant’s turbine can be remotely controlled and information can be received through the Internet. The Wind Division places its products on markets in the Czech Republic, Slovakia, Poland, Hungary, and Bulgaria.
TOSHULIN, a.s. started operations in 1949, when the foundation stone was laid in Hulín for a new engineering works. Since then, the company has undergone a long development in engineering production. Today, the company makes high-quality precision and reliable vertical lathes and vertical machining centres, which rank it among the world’s leading manufacturers of this kind of machine tools. During its existence, the company has exported more than 13 500 machine tools to 60 countries.

Manufacture and Development
The company’s manufacturing programme features several type series of vertical lathes and vertical machining centres. They differ from each other in the way of changing the tools, the slide ram profile, and the general construction of the machine. The company’s production is customer-oriented, which explains the high percentage of customisation of each particular machine. In developing new types of machine tools, the TOSHULIN designers bear in mind primarily the demand and market requirements. They examine possibilities of using non-conventional materials and new technologies, and they systematically improve and innovate the company’s product portfolio. New type series with wider uses and new applications are continuously being added to the range of conventional machines.

The machines come with a wide range of accessories for the manipulation of workpieces and in- and post-process tool and workpiece control, etc. The fitting of the machines with safety coverings is a matter of course.

The TOSHULIN Trademark in the World
The use of top-standard electronic components together with the traditional high-precision mechanical parts are a guarantee of high performance, reliability, and precision of machining, which are characteristic of TOSHULIN machines. The company exports its machines to the demanding markets of the power, aircraft, spacecraft, and transport industries, and it also supplies them to small manufacturers and sub-contractors of large firms in many countries.

Its most important clients include, for example, Rolls-Royce in the UK, SNECMA France, and GE Aircraft Engines, the USA. The company also has many clients in Germany, Russia, and Italy. For the Czech Republic we would like to mention at least Siemens Industrial Turbomachinery Brno and Bonatrans Group Bohumín, which use TOSHULIN machines in their production.

The high demand for machine tools worldwide is also felt by TOSHULIN, whose horizontal lathes are enjoying increasing popularity. The company is enlarging its conventional clientele by attracting new customers who appreciate the company’s flexible approach to their specific requirements and its ability to supply them with technological advice together with the machines, with a guarantee of a long service life. This has greatly enlarged the range of the company’s customers and strengthened its customer base.
The joint stock company ŽĎAS a.s. went into operation more than fifty years ago. Currently it has 3 000 employees and the volume of its production in 2007 was worth approx. EUR 150 million. The company belongs to the Železiarne Podbrezová Group, led by ŽP a.s. Podbrezová, Slovak Republic, leading world tube manufacturer.

ŽĎAS’ production programme comprises forming machines, forging presses, scrap-metal processing equipment, equipment for the processing of rolled products, castings, forgings, ingots and tools, mainly for the automobile industry.

**Forming Machines**

In the forming machines segment, ŽĎAS specialises in the manufacture of integrated forging sets. In this area, it cooperates with its affiliation, TS Plzeň. This co-operation made it possible for ŽĎAS to enlarge its range of sets and attract more customers. As a result, it secured significant orders from India, Germany, Japan, China and the United Kingdom, and a number of Czech firms.

Another important segment of ŽĎAS’ production programme is general-purpose hydraulic presses for the manufacture of a wide range of pressings for use in the power industry, engineering, the automobile industry, etc. Very successful in this area are its special presses used in the assembly and disassembly of rail wagon gearing, which the company supplies to the world’s largest manufacturers of railway equipment, e.g. Sifang Loco & Rokling – China. Other worthy customers are companies in Germany, India, and Poland.

Besides multipurpose presses suitable for all standard technologies, the company supplies special machines and production lines, for example for car part pressing, for hot and cold precision stamping. Another successful item is its spindle press used in the mass production of car and lorry valves. The popularity of these machines is shown by orders from companies in Italy, Germany, Sweden, China, and Slovakia, in addition to many others.

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Metal-Scrap Processing Equipment
A strategic raw material of today is scrap metal used in metallurgy. To process it, ŽĎAS has developed special scrap balers and hydraulic shears, which have become very popular with customers. Very much in demand is the type of hydraulic shears with a high hourly output, of up to 44 tonnes of sheared scrap. For smaller scrap heaps, where large equipment would not be economical, the company supplies mobile scrap processing equipment, mainly hydraulic shears, which is moved directly to the scrap heap. In the past five years, ŽĎAS has delivered more than 130 pieces of hydraulic shears, especially to Germany, Russia, China, the Ukraine, Austria, Slovakia, and Croatia.

Rolled Product Shaping Equipment
This equipment comprises special straightening and inspection lines for hot rolled rod shaping, straighteners for the full range of rolled products, tubes and sheets and longitudinal and transverse sheet shearing lines.

Inspection lines are supplied primarily to manufacturers with a high output of rolled steel designed for further processing in engineering production. The line is used for straightening products, shearing to commercial lengths, diagnosing internal and external material defects and classification according to quality. After packing, the products are provided with a quality certificate. These lines ensure higher quality standards of final products. The high standard of the products is a recommendation for top quality sheet manufacturers. Besides its deliveries for the automobile industry, ŽĎAS has won renown among manufacturers in the electrical industry, especially as regards high-quality dynamo-sheets.

Rod and Tube Straightening Lines
ŽĎAS also makes separate machines and complete lines for steel and non-ferrous metal rod and tube straightening. High output and guaranteed output quality of the material are standard marks of this equipment taken for granted. Interesting references of rolled product shaping equipment are deliveries to companies in India, the USA, Italy, China, Russia, Sweden, the Ukraine, Slovakia, and the Czech Republic.

Accurate grinding
Strojimport a.s. Praha is a trading company which has for 55 years successfully represented Czech and Slovak manufacturers of machine tools and forming machines and their renowned trademarks TOS, MAS, SKODA, ZPS, ZDAS, SMERAL, among others, on world markets. Deliveries for companies like FORD MOTOR Co., KRUPP, ABB, VOEST ALPINE, and PRATT & WHITNEY, are among its most important references.

Core Activities
Besides supplying the full range of machine tools and forming machines, Strojimport a.s. focuses on the supply of technological projects and engineering services, especially complete engineering plants, repair works, multipurpose workshops, training centres, cement works, deliveries of steel, pumps, compressors, and transport equipment.

Exports to Europe, Asia, and America
Although the decisive part of Strojimport’s exports goes to West European countries, the company is pushing ahead to find outlets also in more remote countries, which are not so easy to penetrate, such as China, India, Algeria, Brazil, and Venezuela, as well as in countries of the former eastern block, mainly Poland, Hungary, and Russia.

A prerequisite of commercial success is having the use of a vast agency network worldwide. Strojimport a.s. has been building its network of representation offices systematically from the beginning of its existence. Its closest co-operation

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Strojimport Successfully Represents Manufacturers of Machine Tools and Forming Machines

Strojimport’s Representation Offices in the World
is with enterprises in which it has its own capital interest, which operate operating in Europe and Central America. In Asia, its most important trade partners are companies in China and India. In both these countries it has run, for many years, representation offices providing prompt and reliable business services.

Important Projects
One of Strojimport's recent greatest achievements is the reconstruction and modernisation of free forging set lines, delivered to Indian state organisations some 25 years ago. The worth of the orders ranges between EUR 5 and 10 million. The manufacturer and supplier is ŽĎAS.

Other important orders include the delivery of vertical lathes manufactured by CKD Blansko and TOSHULIN, in addition to contracts with Russian aircraft engine manufacturers for the overhaul and modernisation of different kinds of machine tools and forming machines.

Strojimport continues intensively working the market in Poland, where it also has its representation office. In 2007, its turnover in Poland was the highest in comparison with other territories. The notable achievements reached in Poland are represented first of all by its deliveries of horizontal boring and milling machines manufactured by TOS Varnsdorf and delivery of the reference machines FUEQ 150, manufactured by TOS KURIM.

Strojimport's long-standing partner is Algeria, where in the past the company sold thousands of machines, mainly lathes manufactured by TOS Trenčín. In Algeria, the TOS trademark is a symbol of quality and reliability. Currently that country is interested mainly in the modernisation of machine tools and forging machines supplied by Strojimport in the past, and in CNC machines, including the technology. Each year, Strojimport a.s. participates in the FIA international trade fair in Algiers.

In the past two years, Strojimport has been especially successful in Brazil, to which it delivers mainly heavy-duty machines from ŠKODA Plzeň through its long-time representative in that country, the company Panambra, Sao Paulo.

Strojimport's Export Programme:
- Lathes – all kinds of multi-purpose lathes, heavy-duty lathes, automatic and CNC lathes
- Drilling and drilling-and-milling boring machines, both CNC and conventional
- Gearing machines – hobbing and slotting gear shaping and gear hobbing machines
- Milling machines – both CNC and conventional
- Machining centres – vertical and horizontal
- Grinding machines – both CNC and conventional
- Sheet and profile forming machines
- Presses and forging machines
- Original Polak pressure die casting machines
- Plastic injection moulding machines
- Metal surface finishing machines
- Metal cutting saws
- Woodworking and wood processing machines
Machining and Forming Back in Brno Again after Two Years

In September, Brno will be the venue for the 6th International Machine Tools Fair, held concurrently with the International Engineering Fair every even year since 1998. It is the largest event of its kind in Central and East Europe and is organised with the support of the European Committee for Co-operation of the Machine Tool Industries (CECIMO). This year's IMT will be held in the framework of the 50th International Engineering Fair.

IMT After Two Years
The previous IMT exhibition in 2006 was attended by 493 firms from 21 countries. The great interest of companies in presenting themselves in Brno was attested by the massive participation of machine tools, and forming machine manufacturers at the International Engineering Fair in 2007.

This year's IMT will take place at a time of growing world demand for metalworking and forming machines, so that its organisers are expecting a record-breaking participation of exhibitors. At IMT 2008, exhibitors will display the full range of machining and forming technologies, from conventional to automatic machines and accessories.

Both traditional and new firms have announced their participation at IMT 2008, most of them foreign companies. All the important machine tool and forming machine manufacturers from the Czech Republic will naturally be there, too.

The Association of Engineering Technology at IMT Again
As in previous years, the main partner and expert guarantor of the 2008 IMT International Machine Tools Fair is the Association of Engineering Technology (SST), whose member companies are its regular participants. This association consists of leading Czech manufacturers of machine tools and forming machines. SST has 44 members, who account for more than 80% of the Czech national machine tool and forming machine production.

In co-operation with the Faculty of Engineering of the Czech Technical University in Prague and the Institute of Management and Economics, SST is preparing the 9th International Conference on Integrated Engineering focused on control in company management. Another event will be a poster exhibition of the research work of students and doctorands of technical universities concerned with engineering, in particular machine tools and forming machines.

Gold medals for IMT
Gold Medals 2008
A regular feature of events organised by Veletrhy Brno is awarding prizes to the most interesting exhibits, and the IMT fair is no exception. The basic criteria of the competition for the award of Gold Medals are the newness of products, their originality of concept and design, with proven effect, their technical and technological level, degree of innovation, workmanship, including details, user comfort, commercial and technical parameters, deadline for the placing of the product on the market, environmental aspects, and the presentation of the item. At the previous IMT, the award was won by 3E Praha Engineering for its TrueMill (Tool Radius Uniform Engagement – constant capacity utilisation of the tool). It is a patented technology of the American company SURFWARE, which signifies a revolution in machining technology.

Another winning item was the FMVQ 36 – DN2K vertical machining centre from TOS KUŘIM – OS and the TMZ624CNC automatic spindle lathe, which was presented at the fair by TAJMAC-ZPS. The fourth medal at IMT 2006 was awarded to ERWIN JUNKER – BSH Holice, a.s. for its Jupiter 500 machine for centreless roll grinding.
TOS KUŘIM – Symbol of Reliability and Precision

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TOS KUŘIM – OS, a.s., was established in 1942 and is a member of the ALTA Group. The company supplies the customer with a complete machining system, which includes the design, construction, and a suitable machining line with accessories, technology of custom-made products, and complete service. It has commercial and service networks throughout the world.

Production Programme
The company's production programme in the area of multipurpose machines comprises large milling machines and machining centres equipped with exchangeable milling heads (of its own development and manufacture) including automatic tool exchange for machining non-rotating components. These machines make it possible to work heavy workpieces of the most complicated shapes, from up to five sides with the use of five-axes continuous control. The main technological advantage of these machines is the system of milling heads. The company's production programme also includes single-purpose machines and technological workplaces adjusted specifically to the customers' needs.

Innovation Guarantees Success
TOS KUŘIM's manufacturing strategy is based on continuous innovation and the supply of a wide range of complete machine tools with accessories. The machines are fitted with components of renowned manufacturers of control systems and drives of the latest generation delivered by companies such as Siemens, Heidenhain, Indramat, and Fanuc, and with the best-quality hydraulic, pneumatic, and control elements.

Exports
Machine tools bearing the TOS KUŘIM trademark are exported to more than twenty countries the world over. The company's largest customer is ALTA a.s., which specialises in exports to Russia, Ukraine, and Belarus. TOS machines are sold to leading world companies such as VSMPO-AVISMA Verkhnaja Salda, Korporacija Irkut Irkutsk, FGUP Uralvagonzavod Nizhniy Tagil, NKMZ Kramatorsk, Ukraine, and BELAZ Zhodino, Belarus.

Its other large customers are companies such as General Dynamics and VELAN in Canada, HVF Avadi India, and HIAB NARVA, Estonia.

Awards for TOS KUŘIM
TOS KUŘIM is a regular exhibitor of its products, noted for very high technical standards, the development of new types and modern design, at a number of fairs at home and abroad. In addition to other awards, machines bearing the TOS KUŘIM trademark have won 19 Gold Medals at the Brno International Engineering Fair.
In 2007, the Research Centre of Manufacturing Technology (Výzkumný ústav pro strojírenskou výrobní techniku a technologii – VCSVTT) continued its work on the main project, "Research of Manufacturing Equipment", in which it co-operates with member enterprises of the Association of Engineering Technology. The content and scope of the project is based on world trends and on co-operation with Czech manufacturing enterprises. The project has three thematic branches, research of high-performance, precision, reliable and ecologically friendly machines and their components, research of the properties of machine tools, their measuring, monitoring and evaluation, and research of forward-looking, efficient, and environmentally friendly manufacturing machines (especially machine tools). Altogether 27 partial projects are being addressed by these three branches. The Research Centre also deals with projects supported by Ministry of Industry and Trade and it participates in two projects of the EU 6th framework programme.

**Outcome of the Main Project**

The outcome of the main project, "Research of Manufacturing Equipment", in 2007 is 118 publications, 62 research reports, 57 studies for industry, i.e. research and development work and measuring, 14 prototypes, four utility designs, four seminars, and one course for industrial workers. The Centre currently co-operates with about forty engineering enterprises, and the size of this co-operation, started in 2003, is growing.

**Examples of Co-Operation**

A specific example of the Centre's successful co-operation with industry is the research and development of a new method of protecting of the two axes of a machine tool, which are moving simultaneously. For this development, the Centre has been awarded a utility design and a European patent. A licence contract has been signed between the Centre and Hestego Výškov for the use of the patent. Covers for the SpedTech machine of TOS Varnsdorf have been made under the licence. Another example of the use of the patent is the construction of the H 50 Float machine in TAJMAC-ZPS, where axis Z is designed on the basis of the patented "floating" principle. The axis has distinctly better properties, which adds to the precision and quality of the workpieces.

**Engineering Production Equipment**

To support the broadening of co-operation between the Research Centre, universities, and industry, a branch grouping, called “Engineering Manufacturing Technology”, has been created in the framework of the new Czech technological platform, ENGINEERING (ČTPS), which co-operates with the European technological platform "Manufuture". The aim of ČTPS is to prepare the strategy of eight engineering sectors (one of which is manufacturing technology) and research projects in those sectors for the period up to 2015. This is expected to raise the competitiveness of Czech engineering and to link it to European structures, especially in the area of research.
Poll of Successful Companies Operating in the Machine Tool and Forming Machine Sector

TAJMAC-ZPS, a.s.

Třída 3. května 1180, 764 87 Zlín, Malenovice, phone: +420 577 532 991, fax: +420 577 533 626, e-mail: info@tajmac-zps.cz
www.tajmac-zps.cz

Turnover (2007): CZK 1.9 billion – approx. EUR 70.8 million
Number of employees: 1 109
Contact person: Mr Michele Tajariol, e-mail: info@tajmac-zps.cz
Export: 70%, e.g. to Italy, Slovakia, Germany, Russia, Japan, France.

TAJMAC-ZPS, a.s. is a company engaged in the development, manufacture and sale of machine tools. As it also owns foundry facilities (ZPS-Slévárna, a.s.), which are located right within the company's manufacturing grounds in Zlín-Malenovice, it has the capacity to encompass all stages of development and production. TAJMAC-ZPS, a.s. holds a leading position in the Czech Republic in the development and manufacture of automatic multi-spindle lathes and machining centres.

You are an efficient exporter. Which of your machines are most popular on foreign markets?
Considering the limited possibilities of the Czech market resulting from the structure of industrial production, the historically successful production range which the company exports, is its range of automatic multi-spindle lathes. The most successful machine on the foreign market is its MORI-SAY 8/32,42 model. The company expects that in future automatic multi-spindle lathes will continue to be its most successful export items, which will also include the MORI-SAY TMZ642CNC model. It is a technically most advanced machine, both from the point of view of its actual development and the automatic multi-spindle market, with parameters and machining capacity comparable with the highest world standards.

Your machines are regular winners at national and international exhibitions. Can you name some of the winning items?
One of them is our MCV 1210 vertical machining centre. It is a highly efficient machine with a wide range of uses, including the machining of complicated dimensional shapes on three or five axes. It is intended especially for the plastic, automobile, and aircraft industries. The machine won the main prize at the AV AWARDS 2005 competition for the design of the entire project, a Gold Medal at the 47th Engineering Fair in Brno 2005, and the Excellent Design Award 2007, a prize awarded by MIT and the Design Centre of the Czech Republic.

YORK spol. s r.o.

Pražská 650, 263 01 Dobříš, phone: +420 318 521 896, fax: +420 318 521 850, e-mail: info@york.cz, www.york.cz

Turnover (2007): CZK 72 million – approx. EUR 2.6 million
Number of employees: 70
Contact person: Mr Robert Švirk, e-mail: info@york.cz
Export: 68%, e.g. to Germany, Hungary, Spain, Slovakia, the USA, Canada, France, Poland, the United Kingdom, Austria, the Netherlands, Belgium, Egypt, Saudi Arabia, Iran.

YORK, spol. s r.o. is a traditional manufacturer of artisan tools. The company, established in 1921, is known for the high quality and reliability of all its products. During its existence, it has manufactured more than 3 million vices bearing the YORK trademark, used in many countries the world over. In response to market requirements, its designers and technicians flexibly enlarge
the production programme with new products, which suitably complement and extend the existing range. Owing to tradition, workmanship, quality, and reliability, YORK vices and other clamping devices compare well with European standards.

**Which of your products are the most popular export articles and what countries are the largest outlets for them?**

The most popular are our artisan vices, which are exported mainly to Germany, Spain, the USA, and Hungary. Also much in demand are our HV bench spindles and HVR vices for joiners, which are exported to Canada, France, the United Kingdom, and Austria.

**Can you say which new items from your production programme will appear at this year’s Brno Engineering Fair?**

At the engineering fair, we are going to introduce our innovated adjustable VACUUM SPACE clamping device intended for the vacuum clamping of flat parts, and a fixed and adjustable joiner's bench holder.

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**ŠKODA MACHINE TOOL a.s.**

Tylova 57, 316 00 Plzeň, phone: +420 378 132 788, fax: +420 378 134 427, e-mail: info@cz-smt.cz, www.cz-smt.cz

Turnover: CZK 1 791 million – approx. EUR 66.7 million  
Number of employees: 490  
Contact person: Mr Jindřich Švehla,  
e-mail: jindrich.svehla@cz-smt.cz  
Export: 95%, e.g. to China, Germany, Japan, Russia, South Korea, India.

With its long manufacturing tradition and the number of installed machines, ŠKODA MACHINE TOOL a.s. is one of the most important manufacturers of heavy-duty lathes worldwide. The company ranks first on the world market in the area of horizontal boring and milling machines, represented by a series of heavy-duty ŠKODA HCW horizontal lathes. The heavy-duty series is complemented with a series of light horizontal boring and milling machines, type ŠKODA FCW. The series of heavy-duty machines comprises a unit-built series bearing the traditional ŠKODA SR marking.

**Who are your most important foreign customers?**

The customers of ŠKODA MACHINE TOOL a.s. include companies like Siemens, Mitsubishi Heavy, Japan Steel Works, Sandvik, Alstom, Wärtsilä, Doosan, Hyundai, and Daewoo. Those customers operate ŠKODA HCW horizontal boring and milling machines and ŠKODA SR lathes. ŠKODA machines are popular with a number of other important companies concerned with the manufacture of power generating equipment, shipbuilding companies, and companies building mining, metallurgical, transport and chemical equipment, and special-purpose equipment.

**Do you co-operate with other enterprises?**

The company co-operates with the Research Centre of Manufacturing Technologies on the topological optimisation of castings, where it tackles the project of reducing weight while simultaneously maintaining and improving the mechanical properties of castings, i.e. machine tool parts.
TRIMILL, a.s.

Louky 304, 764 32 Zlín, phone: +420 577 112 111, fax: +420 577 112 129, e-mail: info@trimill.cz, www.trimill.cz

Number of employees: 70
Contact person: Ms Veronika Julinová, e-mail: vjulinova@trimill.cz
Export: 80% – mainly to Germany, followed by Slovenia, Finland, the United Kingdom, Italy, and France.

TRIMILL, a.s. was established in early 2000. Its core programme is the development, construction, assembly, sales, and servicing of machining centres. The company specialises in the production and supply of high-speed machining centres for the manufacture of pressing tools, moulds, jigs, and dies for manufacturers of parts for the automobile, aircraft, and plastics industries.

Which foreign territories are your largest outlets and for which products?
Our largest outlets, where our products have been most successful, are EU states, in particular Germany, where we export high-speed vertical machining centres, followed by Portugal, the United Kingdom, Finland, and Belgium.

Can you mention some of the awards your products have won recently?
In 2007, we won a Gold Medal for our TRIMILL VU 2313 machine at the International Engineering Fair.

Events taking place in the Czech Republic

IEF 2008 (MSV 2008)
50th International Engineering Fair
15 – 19 September 2008, Exhibition Centre Brno
Výstaviště Brno, a.s., e-mail: msv@bvv.cz, www.bvv.cz

IMT 2008
6th International Fair of Machine Tools
15 – 19 September 2008, Exhibition Centre Brno
Výstaviště Brno, a.s., e-mail: imt@bvv.cz, www.bvv.cz

Official participation of the CR in international fairs and exhibitions abroad

ISTANBUL – TATEF
International Engineering Fair
14 – 19 October 2008

CAIRO – MACTECH
International Machine Tool Fair
6 – 9 November 2008

JAKARTA – MANUFACT.IND.
International Engineering Fair
3 – 6 December 2008

Important Contacts

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<tr>
<th>Ministries</th>
<th><a href="http://www.mpo.cz">www.mpo.cz</a></th>
<th><a href="mailto:mpo@mpo.cz">mpo@mpo.cz</a></th>
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<tr>
<td>Association of Engineering Technology</td>
<td><a href="http://www.sst.cz">www.sst.cz</a></td>
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<td>Woodworking Machinery Manufacturers Association</td>
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<td><a href="mailto:svdsz@tos.cz">svdsz@tos.cz</a></td>
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<td>Universities</td>
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</tr>
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Research Organisations and Institutes

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| Institute of Manufacturing Technology, Brno University of Technology, Faculty of Mechanical Engineering | www.vutbr.cz | kocman@ust.fme.vutbr.cz |
| Institute of Manufacturing Equipment, Systems and Robotics, Brno University of Technology, Faculty of Mechanical Engineering | www.uvssr.fme.vutbr.cz | kolibal@uvssr.fme.vutbr.cz |