Gantry type machining centres

- Motor output: 30 – 100 kW
- Column to column distance: up to 6 100 mm
- Execution: fixed table / movable table
- Optional: hydrostatic guideway
- Optional: movable cross-rail

Floor type machining centres

- Motor output: 28 – 60 kW
- Vertical working travel: up to 6 000 mm
- Execution: with shift-out working spindle (diameter 130 mm, length 800 mm) or with automatic interchangeable milling heads
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### PRESENTATION OF FIRMS:

Böttcher ČR, k.s.; Česká exportní banka, a.s.; EXPRESS-INTERFRACHT mezinárodní spedice CZ s.r.o.; KOVOSREAL s.r.o.; KOVOSVIT MAS, a.s.; NOEN, a.s.; TOS KUŘÍM - OS, a.s.; TOS VARNSDORF a.s.; TOSHULIN, a.s.; Veletrhy Brno, a.s.

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**IN THE NEXT SUPPLEMENT TO CZECH BUSINESS AND TRADE**

The chemical and pharmaceutical industry in the Czech Republic has a long tradition. Thanks to the dramatic advances in the chemical industry, living standards are rising and discoveries in pharmacy prolong people’s lives. The next supplement to the Czech Business and Trade journal will give an overview of the chemical and pharmaceutical industry and bring an outline of its possible future development.
Dear Readers,
the engineering industry has always had a strong position in the Czech Republic. Czechs are well-known for their creativity, there is a large number of inventors who have designed machines that are used all over the world. Czech quality machines have a high chance to succeed on the international market, a great part of their production is designed for export. Although 2009 brought shocks to the Czech engineering industry, excellent companies have survived the crisis and are continuing to build their technological base. The market did halt for a time, but this happened all over the world. However, the first signs of recovery have been appearing since the spring. This is evident also from a statement of the international group of national associations of manufacturers from fifteen European countries known as CECIMO, from which we quote below:

Among the articles, we would like to draw attention particularly to the analysis of the Czech engineering industry and to the survey of the Czech machine tool and forming machine industry. Furthermore, you can learn about important international engineering fairs to be held in the coming months, and information about other events is provided also elsewhere in the supplement.

Šárka Kratochvilová

Czech Engineering Industry Has not Been Washed Away by Tsunami of Global Recession

Milan Mostýn, Confederation of Industry of the CR, e-mail: mmostyn@spcr.cz, www.spcr.cz

Perhaps the motto most frequently quoted by Czech industrialists is “Crisis is a chance”. It expresses the viewpoint of many engineering company management boards which, although surprised by the economic cooling at the end of 2008, succeeded in reacting quickly and creatively and thus mitigating the blow of the global recession which hit the entire economy. Its synchronous impact on their most important foreign markets, which are Germany and the Commonwealth of Independent States, was a great shock to the export-oriented Czech economy.

Now it is becoming clear that Czech industry, which creates roughly 30% of the Czech gross domestic product, and its backbone, the engineering industry, are already recovering from the impact of the global recession and the decline in production.

As the Economic Outlook of June 2010, published by the Confederation of European Business (BUSINESSEUROPE) shows, the Czech Republic has successfully coped with the impact of the recession. "It fared relatively well in the assessment, along with Denmark, Germany, and Austria it was assessed among countries weathering best the impact of the crisis", the analysis showed.

Tradition and Innovation
The consequences of the recession for the Czech economy would have been felt even more had the Czech engineering sector, and industry as a whole, not demonstrated a considerable rate of resistance. It should be noted that its forte is a tradition of more than 150 years, when a number of firms producing world famous brands, such as the Škoda works manufacturing cars, locomotives and turbines, or ČKD, the producer of motors and railway carriages, originated in the country. In the area of transport engineering, the list of products included the Tatra, Avia and Liaz trucks, Zetor tractors, Jawa motorcycles, Karosa buses, or Aero aircraft. In the 1930s, the then Czechoslovakia ranked among the ten most important engineering countries in the world, and it maintained this position for a long time.

This tradition is also linked with a technically educated workforce, a system of education which is to be reformed in the near future to strengthen technical disciplines. Many research institutes developed hand in hand with the engineering sector.

Naturally, the sector has experienced profound changes. The decisive ones took place in the last twenty years when the economy was transformed, state-owned companies were privatised and their property structure changed further. In many cases former concerns were divided so that two-thirds of engineering firms are now accounted for rather by smaller medium-sized enterprises.

Production Effectiveness Is Growing
A fact characteristic of the Czech sector - the light, medium, heavy, precision, and investment engineering - is that, following the restructuring, companies have considerably slimmed down and their production made more efficient. They had to cope especially with the initial disintegration of the Eastern markets in the 1990s, and in many cases reorientate to the demanding Western customers.

In addition, they are gradually losing the advantage of lower production costs. This has led Czech producers to be more innovative with new products and significantly increase their quality. Particularly under pressure from
Asian competitors, it is vital for Czech firms to maintain their market position by manufacturing machines with a high value added.

It was precisely due to these forces that engineering companies have succeeded in overcoming the period of the deepest downturn in demand of the last two decades. It is ironic that 2008 was the most successful year ever in quite a number of segments of engineering production.

**Companies Reacted Creatively to Crisis**

The successful reaction of engineering companies to the recession was proved by surveys conducted by the Confederation of Industry of the Czech Republic (SP CR) among its 1600 member organisations quarterly from October 2008 to June 2010. They show that while firms sought to reduce costs, they simultaneously exerted enormous effort to increase labour productivity, intensified their search for new markets and their marketing activities. Some firms increased investment in innovations and improved the qualifications of their employees. Mainly thanks to these measures engineering firms have been able to increase their global competitiveness.

“This year, too, most firms (53%) continue to cut costs and a half of them to increase labour productivity, and two-fifths of them (42%) their search for new markets,” the SP CR survey notes.

**Different Reactions of Branches**

It is natural that different segments of the engineering industry and different companies were hit by the recession to a diverse intensity. For example, the manufacture of machine tools and forming machines dropped by one-third in 2009 year-on-year. For the second half of the year 2010, company executives are moderately optimistic.

The greatest problem is the time lag in the demand for machines, which will not be reflected positively in the companies’ economy before 2011 at the earliest. “Even if, from day to day, something so improbable happened now, such as that the recession would end and the economy in the whole world would get to an upward trajectory, our sector would record such a change only with a certain delay”, says Ivan Čapek, Managing Director of the Association of Engineering Technology, a member organisation of the SP CR.

These conclusions are based on two circumstances. The first one is that the factories which need machines will initially start looking for production reserves in their own operations and most probably “resuscitate” capacities that have been scaled down. Thus, at first they will put into operation machinery that has been lying idle or is little used.

The second circumstance is that after the recession, the world market will be flooded with “second-hand” machines from companies which did not weather the recession and failed. In Europe alone, hundreds of factories have been forced by the economic crisis to close down and their machinery will now be available cheaply.

“New machines are not cheap. In many cases managers will thus decide to purchase an older machine of comparable quality at half-price”, Ivan Čapek notes. The decision whether to purchase new machines or not will also depend on how Czech companies succeed in combining a high technical quality and services with an acceptable price. Many of them have good experience in this.

**Crisis Has Been Felt Even by the Largest Manufacturers**

In particular small and medium-sized firms experienced difficulties because of the recession, the one-hundred strongest Czech companies lost CZK 200 billion (approx. EUR 8 billion) in 2009. For example, as this year’s annual rankings of the Czech TOP 100 largest companies show, these firms earned 8% less because of the crisis.

The situation has been commented by Richard Hindls, Rector of the University of Economics in Prague, which participated in the drawing up of the list. “These large firms maintain a stable performance, whether they are companies from the area of engineering, telecommunication technologies, or car industry”, Richard Hindls said.

**The Worst Is Over**

Similarly, other experts are also noting that for some sectors the worst is already over. An example is the motor industry, which creates ten percent of the Czech gross domestic product. The Czech Republic is thus a world power in the manufacture of vehicles, both cars and trucks. It has acquired this status thanks to tradition, as well as to investments by foreign car makers, especially the Volkswagen concern in Škoda Auto, but also Toyota, Citroen, Peugeot, Hyundai, and Ashok Leyland. In addition, these automobile manufacturers have brought with
them lots of investors-subcontractors, also in the area of transport engineering.

Notwithstanding the recession, in 2009 the Czech Republic retained its position of the 5th largest European car maker and is the 2nd largest car manufacturer in the world per inhabitant (95.5 cars/1000 inhabitants/year). “The different production segments of the automotive industry have been affected by the economic recession with varied intensity. Car production scored good results. A record number of cars was produced in the Czech Republic in 2009 and thanks to this, the total production of road vehicles exceeded the one-million mark”, said Martin Jahn, President of the Automotive Industry Association and SP CR Vice President.

The favourable development in the motor industry had a positive effect also in other segments of the engineering sector.

However, there are also other examples of successfully overcoming of the impacts of the recession. These include the manufacturers of large machines. Thus, companies which need these large machines must address the manufacturers well in advance. In the Czech Republic these producers include TOS Hulín and Škoda Machine Tools. Some smaller subcontractors and producers of farming machines are also working at full throttle.

**Outlook of Czech Engineering Sector**

Even the economic cooling has not reduced the importance of the engineering industry and neither the structure nor the orientation of manufacturers are changing for the time being. Despite that, the sector probably faces a revolution. Its basic feature will be a shift to clean technologies.

The sector will also be influenced by changes in other branches. It will be particularly in the area of energy production and distribution, and the reduction of energy intensity, although this already receives attention. The complementing of classical sources of electricity with alternative ones requires not only new technologies but also different production procedures.

According to a number of studies, manufacturing will require optimisation of the use of macro- and micromechanical and electronic elements to achieve a further degree of energy and ecology thriftiness. Emphasis will be placed on automatic control of the operation of sets of machinery and equipment.

In the area of research and development of machine construction, there is growing need for activity-based simulation of future operation, technical design, safety and, last but not least, production quality management. In this context it is evident that competitiveness of the Czech engineering sector will require further more pronounced support to research and development in future-oriented branches.

A number of innovations were presented for example at the International Engineering Fair in Brno in 2009. In September 2010, the 52nd edition of the Fair will also bring new developments focused on innovative technologies for reducing environmental impacts, with emphasis on renewable energy sources, energy self-sufficiency and saving.

It will also introduce technological trends in the automation of production, including the effort to establish integrated manufacturing enterprises able to react quickly to the constantly changing market demand as well as to the emergence of sudden global upheavals.
Lathes, drilling and boring machines, milling machines, grinders, planers, broaching machines. Presses, power hammers, benders … Even this is not a complete list of machinery in the category of machine tools and forming machines that have formed the central line of the Czech engineering industry for decades. Thanks to these machines, production equipment is made for other industrial sectors. What is the current situation of this branch in the Czech Republic where export is crucial, and what are its prospects?

Globally, the production of machinery is currently in a slump. A considerable rise in the prices of raw materials has been constantly increasing competitive pressure in the engineering sectors. It is becoming more and more important to manufacture at optimum costs, not only because of the fall in orders. “However, greater efficiency in production will be felt only if we join the present development and modernise the process and production in time. Hand in hand with this goes the improvement in human resources,” says Jiří Kapouněk from the Association of Engineering Technology Prague. Moreover, who can hesitate at a time when foreign investors, trying to cut costs, are moving manufacturing to other parts of the world, where they expect to run more advantageous productions in financial terms. The best answer to this trend is to invest in production in a manner that would bring substantial cuts in production costs.

Clear Statistics
According to statistics published by the Engineering Technology Association, the export of machine tools and forming machines in the Czech Republic was worth EUR 418.57 million in 2009. This result confirmed the adverse effect of the current economic crisis. Compared with the highly successful year 2008, the overall export of machine tools and forming machines dropped by almost 26%. This roughly reflects development in the European area. 2009 import of machine tools and forming machines in the Czech Republic amounted to EUR 214.16 million, a 54% drop year-on-year. The decline of some 40% in both production and export is not very encouraging, as the prospects for 2010 do not give much hope of a substantial improvement. For example, the meeting of the European Machine Tool Industries in Spain in the summer of 2009 noted that a gradual re-start of investment in new machining technologies could be expected from 2010, but the recovery would be slow.

Giants in Engineering
You need not have much practical experience to see one thing – mergers and the formation of international concerns and holdings is a world-wide trend which has not shunned the engineering sector. Through the process of economic amalgamation, the giant companies then succeed in substantially lowering production costs, diluting the cost of research and development, and subsequently of the production of new machines, and thus penetrating ever new markets. For small Czech companies it is very complicated to compete with these production giants. It is thus crucial which markets the particular Czech firm may wish to penetrate. If it intends to produce machines in large quantities, an alliance will be essential, whether on the economic or trade level. According to top executives of leading Czech companies in the sector, this would be facilitated by legal amendments that would simplify and shorten the process. Czech firms often consider various forms of links with larger companies because they believe that large customers are a priori distrustful of small suppliers.

Czech Allies
A certain form of alliance exists within the membership of the Association of Engineering Technology Prague. It exists since 1990 and associates about 40 major production and supply organisations engaged mainly in the manufacture and supply of machine tools and forming machines, metal-working machinery, tools and measuring devices, hydraulic elements and units. As practical experience illustrates – “no-one can do just one thing any more”. For example, the development of new technologies is conducted jointly under the aegis of the Research Centre of Manufacturing Technology. The joint research and development is aimed at keeping the country among world leaders in the sector of machine tools and forming machines.

Production “at Home” at Times of Crisis
Another clear trend on the world markets is that at the time of crisis, when work is scarce, companies withdraw production back under their wings, not to lose their know-how, skilled labour, and possible competitive advantages. On the other hand, at the time of boom everybody concentrated on work with the highest value added. These times are gone long ago.

New Materials
A great future is envisaged in the area of machine tools and forming machines for titanium and other noble materials for new technologies. These new materials are being used increasingly and machinery must be adapted so that they can be utilised and worked. For most companies this means a profound change in the style of development and thinking. For
instance, machine tools were used for 60 years to work iron and cast iron, and construction and technology were adapted to it. At present the change does not mean only the conversion of a standard type of machine into machinery capable of working with titanium. Indeed, the changes must be incorporated into the process of development of a machine from the very beginning. Another aspect of the current trend is the great emphasis placed on the environment and low energy intensity.

**Support for Education**

Current research shows that in a year-on-year comparison the number of students applying for admission to Czech technical universities has been rising again after a long time. This may be partly due to positive steps taken lately by large industrial firms and also by some regional governments. It is necessary to maintain a skilled labour force and employment especially in those industrial branches which, although hit by recession, have the chance to become the driving force of the Czech economy once the crisis is over.

**Eastern Markets**

Experts recommend greater attention to Eastern markets. This, too, could help Czech engineering companies in general to cope with the aftermath of the economic crisis. Many Russian factories use Czech technology and trust it. As the Director of the Association of Engineering Technology, Ivan Čapek, has noted, it is vital to negotiate intensively about sale and cooperation in eastern markets and pay particular attention to what the Russian market needs.

**How the State Will Help**

The principal issue for the Czech engineering industry and the production of machine tools and forming machines is export. The worsened access to financial resources and their lower availability also for the potential clients of Czech exporters is one of the reasons for the drop in foreign demand for new supplies of goods which form the bulk of Czech exports (machinery, equipment, transport equipment, including machine tools and forming machines).

Exporters can be aided by an amendment to Act No. 58/1995 Coll., on Insurance and Funding of Exports with State Support. The amendment will allow greater participation of commercial banks in state-supported credits and export insurance through the mechanism of equalisation of interest differences. The system will help to increase the comfort for Czech exporters. Another major element is the shift in approach from support for the export of goods of national origin to support for export in the national interest. This means that the possibilities of financing and insuring exports and investment credits will be extended to Czech-controlled foreign companies.

Other good news for Czech exports is the increase of the registered capital of the Czech Export Bank (CEB) which makes it possible to grant support at the amount of additional CZK 20-25 billion (about EUR 0.756 – 0.945 billion). The insurance capacity of the Export Guarantee and Insurance Corporation (EGAP) has also increased, to CZK 150 billion (approx. EUR 5.67 billion). Thus no well-prepared export project requiring this form of insurance and funding will fail because of the lack of CEB and EGAP resources.
Results in Machine Tool and Forming Machine Sector in the Czech Republic

Export of Machine Tools and Forming Machines from the Czech Republic in 2009

The Czech Republic’s export of machine tools and forming machines was worth CZK 11,071.3 million (approx. EUR 420 million) in 2009. This result confirmed the negative impact of the ongoing economic crisis. Compared with the extremely successful year 2008, the total export of machine tools and forming machines dropped by almost 26%, which roughly copies the fall of export in other CECIMO member states. An analysis of the results by the tariff nomenclature shows a slight increase in exports only in the HS 8457 group, in the other HS (Harmonised System) groups exports decreased.

Import of Machine Tools and Forming Machines to the Czech Republic in 2009

The Czech Republic’s import of machine tools and forming machines was worth CZK 5,664.5 million (approx. EUR 215 million) in 2009, which is almost a 54% decline year on year. The largest drops in terms of volume occurred in the groups HS 8456, 8457, and 8458. The import of machinery to the CR by territories did not change in comparison with 2008.
INVESTMENT

Engineering – the Most Favoured Sector for Investment

Jiří Sochor, CzechInvest, e-mail: jiri.sochor@czechinvest.org, www.czechinvest.org

Investment exceeding two and a quarter billion dollars and almost twenty thousand new jobs has been brought to the Czech Republic by mostly foreign investors in the engineering industry in the last few years. If the production of transport equipment is added to the category, engineering will be clearly the most sought-after area of foreign investment in the Czech Republic.

Solar Turbines in North Bohemia

For example, a few months ago the Caterpillar company, or specifically its subsidiary Solar Turbines, has decided to build a service facility in north Bohemia for the repairs and renovation of its industrial gas turbines from the whole region of Europe, Africa, and the Middle East. Caterpillar has a similar facility only on the other side of the planet, on the American continent. Apparently, Caterpillar has taken a liking to north Bohemia because it has also opened an AFSI filter manufacturing plant there in 2010.

Dynamic Investment Development

Investment in engineering in the Czech Republic is experiencing a dramatic development. Statistics of the CzechInvest government agency, which attracts foreign investors to the Czech Republic, show that while for example in 2004 twenty-one investors in manufacturing came to the Czech Republic and another two companies made investment in research and development, five years later the ratio was reversed – six companies investing in manufacturing and as many as 26 in research and development in the engineering sector.

Skilled Labour, Quality Management

“Investors have already gained the experience that we are a country where their projects prosper very well. Skilled labour, quality management – all this has convinced them quite quickly that they benefit by bringing to us also research and development. All this is now clear from our statistics”, Ms Alexandra Rudyšarová, CzechInvest’s CEO, explains the trend of the last few years.

Economic Advantages

The latest example is the company Edwards Vacuum. It has decided to scale down its activities elsewhere in the world and concentrate its production of vacuum pumps in South Korea and the Czech Republic. Besides manufacturing, its Czech operation will also take care of part of research and development. The main reasons? According to Edwards Vacuum, these are the advantageous geographic position in the middle of Europe and, compared with the old EU members, the more advantageous economy of costs.

Various Types of Investors

Edwards represents one typical group of investors – those who cautiously test the Czech Republic with simple projects at first and subsequently train specialists also for the smartest investments. A second group of the recent months is formed by those who have been forced by the global economy cooling to seek more effective ways of manufacturing, whether by relocating their businesses or choosing new suppliers – who, however, need new locations for more cost-effective production.

“A newly arriving investor to the Czech Republic has the best possible conditions that have ever existed in the Czech market and will exist for a long time to come”, Ms Rudyšarová says. “People seek jobs and low rents can be agreed for many years ahead because developers need funding and, in addition, have built their properties which are now vacant for less money than they could build them because of tax changes today. There will never be such a favourable time again.”

PROJECTS MEDIATED THROUGH CZECHINVEST IN 2009

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of projects</th>
<th>Investment (mil. CZK)</th>
<th>Investment (mil. USD)</th>
<th>Newly created jobs</th>
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</thead>
<tbody>
<tr>
<td>biotechnology, medical equipment</td>
<td>3</td>
<td>47.74</td>
<td>2.55</td>
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<tr>
<td>strategic services centre</td>
<td>13</td>
<td>170.52</td>
<td>8.71</td>
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<tr>
<td>paper, wood processing</td>
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<td>743.04</td>
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<td>electronics, electrotechnics</td>
<td>20</td>
<td>1 923.36</td>
<td>105.22</td>
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<tr>
<td>plastics, rubber</td>
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<td>chemistry, pharmacy</td>
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<td>2 000.65</td>
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<td>IT and software development</td>
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<td>651.46</td>
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<td>metal products</td>
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<td>engineering</td>
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<td>8</td>
<td>3 625.30</td>
<td>177.60</td>
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<tr>
<td>other</td>
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<td>5 303.07</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>186</strong></td>
<td><strong>16 888.91</strong></td>
<td><strong>875.87</strong></td>
<td><strong>5 769</strong></td>
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</table>
OPEN CAST MINING MACHINES AND EQUIPMENT

LONG DISTANCE AND TECHNOLOGICAL BULK HANDLING CONVEYOR SYSTEMS
MATERIAL HANDLING EQUIPMENT
STOCK-YARD EQUIPMENT
OPEN CAST MINES OPENING AND DEVELOPMENT

- Lay-out design, basic design including FEM analyses, detail design, and fabrication drawings
- Expert reports, consultancy, and technical assistance
- Turn-key project management
- In February 2010 there was a new NOEN development office opened in Unicov.
- 2009 turnover EUR 25 million

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European Machine Tool Industry
Taking a Turn for the Better This Year

The special-interest Association of Engineering Technology has been operating in the Czech Republic for 20 years. It associates about forty major manufacturing and supplier organisations which produce and deliver mainly machine tools, woodworking machines, and similar machinery. The Association is a member of the prestigious international organisation of national associations of manufacturers from European countries known as CECIMO (European Association of the Machine Tool Industries in Europe). It brings together 15 national associations of machine tool manufacturers, which represent approximately 1600 industrial enterprises in Europe. CECIMO covers more than 97% of machine tool production in Europe and more than 40% worldwide. In 2009, companies of the association employed more than 150 000 people and had a total turnover of EUR 17 billion. More than half of the production is exported outside Europe.

Better Times in Europe
The Economic Committee of this large association met in Leipzig in May 2010, where it confirmed that the machine tool industry is slowly recovering in Europe. During the General Assembly, the CECIMO Economic Committee confirmed the following:
- an upturn in machine tool orders since the 4th quarter of 2009,
- the recovery is led by the emerging markets in Asia. CECIMO pleads for better market access to these economies, especially the removal of non-tariff barriers,
- its full support to the EU key enabling technology initiatives and the Free Trade Agreement with South Korea.

Current Trend
Machine tool orders turned around in CECIMO countries at the end of 2009, after dropping by over 50% in the first quarter of 2009 (in comparison with the same period one year earlier) as a consequence of the financial crisis. Mr Michael Hauser, President of CECIMO, explains that “…since order backlogs are still very low, it will take a few more weeks before the turnaround is clearly observed in sales”.

China’s Development
Recovery in the European machine tool industry is stimulated by a growing need in the emerging markets, especially China. Despite the severe crisis in the sector in 2009, the global market share of machine tools exported from CECIMO countries rose from 55% to 61%. This proves the competitiveness of the European industry in global markets. CECIMO expects this trend to continue in 2010.

Certain Limitations
It will take some time for European consumption to recover, as capital investment in the traditional end-user industries is still low, capacity utilisation is below average and credit is still difficult to get, especially for small companies. The current financial instability associated with the sovereign debts of some European countries may also hinder the necessary cash flow that is required by industry to invest in modern and energy efficient production equipment.

New Access to Markets
The geographical shift of the machine tool consumption towards the emerging markets of Asia and Latin America makes it therefore necessary for the European machine tool industry to obtain fair and non-discriminatory access to those markets.

“The economic crisis has unfortunately led to a revival of some national reflexes, demonstrated by a surge in small-scale national initiatives which are often more of a hindrance than a help to boosting the economy”, says Mr Frank Brinken, Chairman of CECIMO’s Economic Committee. Such obstacles (as the recently introduced machine import regulations in South Korea) often take the form of additional local certification or of some significant delays in getting import or export licences.

Free Trade
Free trade agreements, such as the EU-South Korea agreement, are expected to eliminate such non-tariff barriers. Therefore CECIMO is a strong proponent of this agreement. Even though it understands the mitigated position of some sectors regarding the duty drawback and the safeguard clauses, CECIMO requests that the European Council accepts a provisional implementation of the free trade agreement before the European Parliament gives its final consent.

Promising Initiatives
CECIMO holds high expectations of two recent initiatives launched by the European Commission; of the European strategy for the key enabling technologies, and the EU 2020 Strategy that should include an EU industrial policy. CECIMO directly participates in the key enabling technologies initiative through the involvement of Mr Javier Eguren, Vice-President of CECIMO. He was recently appointed to the High-level Group as the representative of the Advanced Manufacturing Systems sub-sector. As such, CECIMO is confident that the European Union will firmly establish the necessary regulatory framework to succeed in paving the way to a smart, green, inclusive, innovative, and globally competitive machine tool sector of tomorrow.
Innovation from Varnsdorf

Ladislav Plaňanský, TOS VARNSDORF, e-mail: lplan@tosvarnsdorf.cz, www.tosvarnsdorf.cz

Various indicators and signals from the market seem to suggest that the recession is slowly ending in the machine tool sector as well. Although we cannot speak about big growth yet, the bottom has apparently been reached and some markets are recovering. We learn this from our partners and see it in the rising participation in exhibitions in some territories.

TOS VARNSDORF Expanding its Programme

Like all other machine tool manufacturers, TOS VARNSDORF grappled for many months with the negative effects of weak demand. And this is precisely the time when it is being decided more than ever who has enough strength to survive. One of the best ways manufacturers can take is profound innovation or significant extension of a company’s offer. TOS VARNSDORF added an entirely new element to its production programme in 2009: for the first time ever it began to offer portal-type machining centres. It was important step number one the company has taken towards the future.

Innovation, and Innovation Again

However, let us first take a look back at the past. TOS VARNSDORF has more than a century-old history, the machine tools manufacturing company was founded in Varnsdorf in 1903. The initial medley of various machines, mostly small ones, was improved over time, until the company specialised in the manufacture of horizontal boring machines after World War II and the subsequent nationalisation. The motor permanently driving the company’s development was its focus on innovation, every year a new type of machine originated, or a new version of machinery already produced was launched. The company has operated without interruption since its establishment, work in the factory was not interrupted by the war, the founder’s death, nationalisation, various mergers, nor eventually by the post-revolutionary ferment in Czech industry at the end of last century. Privatisation brought a new stage in the company’s life, which is characterised by substantial increases in the company’s turnover and labour productivity, especially in the last few years.

Above-average Diameter Spindles

Let us return to the near future. A special attraction among this year’s hits in the production programme is the floor-type horizontal milling and boring machine designated WRD 170 (Q). TOS VARNSDORF implements the rule of coding the “size” of its machines into their names. The “one-hundred-seventy” thus has a spindle of 170 mm diameter, which is the first time in the company’s existence that this parameter has exceeded 150 mm. With this machine, the firm has entered a new segment of technologies and opened to new clients.

Technology for Machining Giants

Clients are becoming ever more demanding and suppliers who want to succeed must offer solutions that will satisfy these high demands. The WRD 170 (Q) machine is the possible solution, its applications are diverse. It can be used to machining very large-sized and heavy components in many industrial sectors. This includes the manufacture of wind power stations, steam turbines, ship engines, propellers and other parts of even large surface and underwater vessels, parts for rail vehicles of all types, for automobiles, and is naturally suitable for the aircraft industry as well. Its advantage is that thanks to its numerous accessories and its parameters it can cover a wide range of technological operations, from heavy machining of 125-tonne workpieces up to five-axis machining of complex broken surfaces.

Customer Solutions

The machine is a typical example of the realisation that the time of the dictate of purpose is coming: “Customer, tell us what you need to be manufactured, and we will prepare the best solution for you. It is only up to you what you choose and what properties of our product you will prefer. We will not supply you only with the machine but also with our experience placed in it and in the technologies prepared for it. And we will indulge you with an additional offer of services.”

Green Light for “Green” Machines

However, trade is not everything. The offered machine tools must not only be able to manufacture things that will ease the burden on the ever more tormented nature (let us give the example of wind farms or geothermal water pumping equipment or components for photovoltaic systems), but the machines themselves should become “greener”. How more attractive is a machine from which various liquids do not leak in all directions during operation, which does not pollute its surroundings with noise and vibrations, does not ruin the operator’s health with exhalations and mist from dispersed emulsions? As much as it is more attractive, so much it is more in demand. And also more needed and more appropriate for the future. As we have said, a change is bound to come.
The Customer Comes First

Vendula Švajková, TOS KUŘIM - OS, a.s., e-mail: vendula.svajkova@tos-kurim.cz, www.tos-kurim.cz

Ever since its establishment in 1942, TOS KUŘIM has been a pioneer in putting new technologies into practice, and the company’s trademark has become worldwide a symbol of reliability and precise machine tools with long service life. During that time, the firm has delivered some 90 000 machines to the whole world. In 2005, TOS KUŘIM – OS became part of Czech Trade company ALTA.

The company’s production programme is focused on large-size milling machines and machining centres that enable machining of heavy workpieces of complicated dimensions and sophisticated shapes from as many as five sides, making use of continuous control in five axes. These include machining centres with a moving column and portal machining centres. The production programme also includes customised technological workplaces. The main technological asset of TOS KUŘIM – OS machines is the system of exchangeable spindle heads. Currently, the company offers heads with outputs up to 100 kW, which allow highly universal uses of the centres from roughing to high-speed finishing.

Modular Design for Users

In general it can be said that all universal machines of TOS KUŘIM – OS are of modular design, enabling the arrangement of the working space to suit the user’s requirements even with regard to the complexity of the technological operations. The universality of the machines, especially the wide choice of spindle heads, allows the optimal adjustment of the machine to technological requirements. The operator can choose the most suitable spindle head for a particular operation and make the best use of the maximum cutting conditions and working space of the machine. TOS KUŘIM – OS supplies cca 30 different types of spindle heads of its own design.

Wide-ranging Application and Service

The machines have a multitude of uses in heavy engineering, the power industry, the armament and aircraft industries, in the manufacture of heavy-duty building and mining machines, in ship-building and the railway industry.

The firm’s strategy is based on the philosophy of a customer oriented society, where all begins with the identification of the customer’s needs and ends with post-guaranty service. The machines are continuously innovated, including the components, systems, and accessories, which are supplied by renowned manufacturers. Adding substantially to the customers’ satisfaction is the service support of the machine suppliers. In recent years, TOS KUŘIM – OS has broadened its services to customers, especially in the area of remote diagnostics and prompt supply of spare parts from its well-stocked spare parts warehouse.

On-line Contact with the Machine

Remote diagnostics allow the customer the fastest possible service in the form of immediate on-line contact with the machine. This enables the customer to obtain prompt and accurate identification of the defect with the possibility of its removal. The service is provided for machines with Heidenhain, Siemens, and Fanuc control system. The number of successful interventions increases by tens of percent each year and the customers’ interest in this service is growing.

Machines to the Whole World

TOS KUŘIM – OS machining centres are exported to more than twenty countries the world over.

The largest customer for them is ALTA, a company specialising in sales to Russia, the Ukraine, and Belarus. Machines from TOS KUŘIM – OS are sold to leading world firms, such as OAO Korporaciya VSMPO-AVISMA, Russian Federation; OAO NPK Irkut, Russian Federation; OAO NPK Uralvagonzavod, Russian Federation; ZAO Novokramatorskiy mashinostroitelnyi zavod, the Ukraine; AOA BELAZ, Belarus, etc.

Other major export destinations are firms such as GENERAL DYNAMICS Land System, Canada; HVF Avadi India; BHEL, India; ORD NANCE FACTORY Kanpur, India; Hiab Balti, Cargotec Corporation, Estonia, etc. The company has recently exported its first machine also to China.
We are introducing
Czech ICT and Topical Opportunities for Cooperation

Michal Zálešák, Czech ICT Alliance, e-mail: info@czechict.cz, www.czechict.cz

The information and communication technology sector is experiencing a noticeable development in the Czech Republic, especially in the area of services. This development also brings new opportunities for international cooperation. The Czech ICT Alliance is an export alliance of CzechTrade, a government trade promotion agency which helps to build a good name for Czech ICT abroad and creates concrete opportunities for pro-export development. It cooperates on this long-term task with another government organisation, the investment and business development agency CzechInvest. This article would like to present to you the particular opportunities for cooperation and to show how important the ICT sector is for the Czech economy.

Importance of ICT Sector for Czech Economy

In the last few years, ICT in the Czech Republic has seen a very dramatic development, which is best documented by the following figures:
- almost 33 000 ICT firms in the Czech Republic provide jobs to more than 130 000 employees,
- in the last 10 years the export of ICT goods rose 15-fold to CZK 360 billion (i.e. EUR 13.6 billion) in 2008, it accounts for almost 15% of total exports, which makes it a very important export category (this share rose more than 5.5-fold during the same period),
- another area of very promising development is the export of IT services (its value increased more than 8.3-fold in 7 years, to USD 786 827 863 in 2007 (i.e. approx. CZK 13.6 billion), almost 88% delivered to Europe, 10% to the USA,
- in 2008, annual payments to the state per average IT employee amounted approximately to CZK 350 000 (approx. EUR 13 230) (in 2002 only CZK 213 000, i.e. approx. EUR 8 050), the average wage is CZK 43 703 per month (i.e. EUR 1 325 EUR),
- expenditure on ICT equipment and services was CZK 742 billion (EUR 28 billion) in the CR in 2007, of which IT services totalled CZK 129 billion (EUR 4.9 billion) and software CZK 30 billion (EUR 1.13 billion),
- according to the CzechInvest, every third investment in the Czech Republic goes to the IT sector.

Free Services for Foreign Partners

In cooperation with CzechTrade’s offices abroad, the Czech ICT Alliance provides the following free services to foreign partners and those interested in cooperation with Czech ICT firms:
- Information services – information about the different aspects of the Czech ICT market: statistics, as well as data on selected companies.
- Search for suitable partner/supplier – on the basis of a specified request from a foreign partner (technology, number of selected specialists, reference), the Czech ICT Alliance selects suitable firms which satisfy the specified criteria.
- Partnership in pan-European programmes supported by the European Commission – the Czech ICT Alliance is the implementation body for a project of the Technology Platform for IT services, and it has extensive experience of subsidised projects. There are two options for partnership – either partnership with the Alliance in European projects, or assistance in the choice of a suitable partner firm for international projects.
- Preparation and implementation of presentations on the particular aspects of the Czech ICT market – based on the specification of requested information the Czech ICT Alliance prepares a presentation which will acquaint prospective foreign partners with the advantages and possibilities of cooperation with Czech ICT companies.
- Organisation of trade missions to the Czech Republic – foreign firms and potential partners specify the profiles of companies or specific companies they would like to meet in the Czech Republic. The Czech ICT Alliance then approaches these companies and prepares appointments with them for direct negotiations. The trade mission to the CR thus brings maximum benefit.

Czech ICT firms want not only to be suppliers to foreign companies, but also to be real partners and participate in joint projects. All these services are available by e-mail from info@czechict.cz.

Free information services are also provided to foreign analyst companies. The most im-
**Objective: To Develop Markets and Work Together**

**Czech ICT at Foreign Trade Fairs**
The Czech ICT Alliance participates with Czech ICT companies in many trade fairs abroad. Czech firms could be seen within official Czech participations at the CeBIT trade fair, several specialised events of the prestigious organiser Gartner (e.g. Gartner IT expo), the Swiss Orbit show, GSM expo, and many others. The Czech ICT Alliance is the only recipient of subsidies for foreign IT trade fairs, it is preparing subsidised participations in three exhibitions for the second half of the year. Plans for 2011 include the CeBIT event and several other shows where negotiations are already ongoing.

**Territorial Interest of Czech ICT Firms**
A survey among Czech ICT firms has determined several priority locations where the business of Czech ICT is successfully developing:
- **Countries of Western Europe**
- **Scandinavian countries** (Sweden, Finland, Norway)
- **Russia**
- **Switzerland**
- **USA**

These are priority countries and locations on which Czech ICT firms have agreed. However, individual firms score many export successes all over the world. The Czech ICT Alliance tries to help these as well.

If you are interested in cooperation with Czech ICT companies, the easiest thing to do is to write to info@czechict.cz, and we will help you to find a suitable partner.

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**Czech Mining Tradition**
The business firms which form the CDT alliance are renowned, prosperous, and economically advanced companies which carry on the long-time mining tradition in the Czech Republic. They have practical experience of complete deliveries for the mining and preparation of raw materials, which range from the design of a mine, the selection and determination of suitable technology, to the preparation of the design of equipment, organisation of complete production including assembly and putting into operation, up to the funding of the entire business case. The sum of their theoretical knowledge, practical competences and know-how in the area of complete unit deliveries, engineering technology and industry in general enhances their capability to supply complete design, engineering, and financial activities in the area of extraction of raw materials.

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**Support from Institutions**
The Czech Extraction and Mining Technology alliance endeavours to bring to the world market a forward-looking group of
companies with solid foundations which will become a supporting pillar for the developing mining industries in East European countries. Thanks to support from the Ministry of Industry and Trade and the Czech Trade Agency, and to the quality of the founding companies, the CDT is well poised to operate actively within its competences and intentions.

Let us have a closer look now at some of the members of the alliance, what they do, and what successes they have achieved.

**ENELEX – Export of Electronic Equipment to South Korea**

Enelex develops special instruments for technological measurements in the energy sector. When information appeared about its successful application of thermovision cameras at a coal stockpile in the Czech Republic, a specialised firm from South Korea expressed interest in this solution. Because of the climatic conditions and the coal usually supplied, problems with self-ignition and combustion of outdoor coal piles in South Korea are quite big.

Workers of the Korean partner visited the Enelex company several times and after discussing technical details proposed a pilot technical solution for the project of the Danjin unit № 7&8, which was put into operation in the presence of Czech specialists in 2007. The project consisted of deliveries of machines, machinery systems and parts, and steel structures.

As time went by, Enelex’s systems of coal pile monitoring were installed at three other power plants in South Korea, and in 2009 the second system was installed at the Danjin pile unit № 1-4 as an extension of the original system, which is perhaps the best proof of the end-customer’s satisfaction.

In 2008, the volume of the export to South Korea made up approximately 50% of Enelex’s turnover.

**Hennlich Industrietechnik, s. r. o. – Made the Longest Energy Chain in the World**

The longest flexible energy supply in the world has been manufactured by the Czech firm Hennlich Industrietechnik, which is part of the Hennlich group. Its design for the Tušimice brown-coal fuelled power plant won the main prize, the Vector Award, at the international industrial trade fair in Hanover, Germany. The application of flexible energy supply to the coal pile was awarded the main prize among 110 designs entered from 23 countries.

The prize-winning design is the longest application of energy chains in the world. The equipment, using energy chains of the igus brand, brings the necessary energy to the stacker/reclaimer machines which supply brown coal to the power plant. The total length of the energy supply line exceeds 600 metres, which breaks the former length record from the port of Singapore by more than 100 metres. An interesting technical feature is that this solution makes it possible to connect each stacker/reclaimer to any type of energy supply.

**Krušnohorské strojírny Komoroňy a.s. – Experience of More than 60 Years**

KS is a company operating in the area of machinery and equipment for opencast mining for 60 years. A major project is its general overhaul, by stages, of the wheel excavator KU 800.11/K84, a key part in the overburden removal technology at the quarry in Vřasy, North Bohemia. The company’s basic activities are:

- development and construction of machines, machinery systems and parts,
- production, repairs, assembly, and servicing of machines, machinery systems and parts, and steel structures,
- technological measurements in the energy sector.

Krušnohorské strojírny Komoroňy a.s.

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E-mail: ksk-as@ksk-as.cz

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www.unex.cz
development, production, assembly, and servicing of brown coal boilers, metal working.

Noen, a.s. – Cooperation with Giants

Noen, a.s. employs a team of 90 top-ranking designers who carry out all design and construction work on state-of-the-art technology. The company’s main activity is the design and engineering preparation of machinery and equipment for opencast mining of minerals, transport equipment, bulk handling machines and equipment, and supplies of stockyard equipment. In the area of design for foreign customers it is focused on design documentation, including calculations as well as detailed designs of complete machines and their substructures in the sector.

On the domestic market, the company prepares studies and designs of new wheel excavators, reconstruction and modernisation of conveyor systems and machines for bulk handling.

During its operation, NOEN a.s. has become the main partner of Severočeské doly, a.s. Other important coal mining companies with which it cooperates include Mostecká uhelná společnost a.s. and Sokolovská uhelná a.s. In 2005, it won a framework agreement to perform Due Diligence on mining equipment for the Czech energy company ČEZ in all its future foreign acquisitions. One of the main projects of the present time is coal feeding at the Ledvice power plant. Another important contract is e.g. for coal feeding at the Tušimice power station.

T Machinery a.s. – Success in the Ukraine

T Machinery a.s. is a manufacturer of top-class mining equipment. Its production programme includes shearers, mechanically powered supports, underface equipment, face scraper conveyors, power switching sets, and mining locomotives. In 2009, the company scored great success in the Ukrainian market with new types of its equipment.

The DTEK Concern, leader in coal mining in the Ukraine, has started the process of extensive renewal at its mines. T Machinery a.s. and DTEK have cooperated since 2005, when the first shearer of the MB series was supplied to the Komsomolets Donbassa mine. Following this cooperation, and owing to the excellent performance of MB shearers, T Machinery a.s. has become a supplier of shearers, face scraper conveyors, and power sets also to other mines of the DTEK concern. For example, at the Pavlogradskaya Mine, two million tonnes of coal were extracted in 2009 with an entirely new type of the bridge-type shearer MB 444 P for low seams from 0.88 to 1.3 m.

The new type of the MB 410 E shearer, designed for low seams of 0.9 to 1.8 m thickness, has performed very well at the Krasnoarméyskaya-Zapadnaya of the Donetskíst concern, with which T Machinery a.s. cooperates since 1998. More than 5 million tonnes of coal were extracted at this mine in 2009.

The development of new types of equipment is a natural priority for T Machinery a.s.

Výstavba dolů Ostrava, s.r.o. – Mining in the Jungle

Výstavba dolů Ostrava, s.r.o. (VDO-Construction of Mines Ostrava, Ltd.) has been conducting mining operations at the Merit-Pila coal deposit in central Sarawak, a Malaysian part of the island of Borneo, for 16 years. Approximately 600 000 tonnes of quality coal for energy production are extracted there annually in the open-pit operation with the use of wheel machinery. The VDO provides technical services for the deposit owner, ensures planning, manages extraction in the different quarries, supervises the local supply companies which carry out the mining work, and coordinates recalibration work so that the environmental impacts on the tropical forest are minimised. Construction of Mines Ostrava is a part of Báňské projekty Ostrava, a.s.

Sans Souci Czech Glass Alliance is one of the youngest groupings established under the aegis of the CzechTrade Agency, it was established in 2009. The initiator, and at the same time leader of the Alliance, is the San Souci Company, around which firms operating in the glass industry are associated. They include not only glass-making firms but also others which are involved in the final products. As the companies are relatively small and specialised, and have numerous experts, they work closely together in the fulfilment of large orders and projects, especially for foreign customers. One of many is the project of
Although the entrance hall of the villa is quite a light space, the designer included in the concept ceiling lights, which are also in harmony with the relatively simple and pure style of the whole interior. Lead crystal glass, combined with stainless metal parts, is a composition of high luxury and yet unobtrusive. Everything has been made in cooperation by Sans Souci, Cristal&Cristal and J.H. KOV and J.H. LAK.

**Applied Art**

What other category to use for the artistically rendered entrance gate, which was designed and executed by art blacksmith Radek Bárta? Lens-shaped glass pieces are set in the metal leaves and all is produced in such a way that the gate resists the local climatic conditions without change.

**Other Successes**

Successful projects executed by Sans Souci or members of the Alliance include not only private villas and yachts, but also hotels, royal palaces and theatres, such as the Hilton Prague Hotel, the Connaught London, or the 4 Points Sheraton Hong Kong, as well as private clients from Europe, the Near and Far East, Russia, and Western Europe.

**Mosaic and Glass Tiling Materials**

Originally the design for the swimming pool in the garden was very simple and in several colours. However, Pavel Baxa (Český Šperk a design) proposed unusual details which brighten up the pool area and connect the space inside and outside of it.

The material used was Sans Souci split glass mosaic with galvanised metal coating, the glass statue by the pool side is made from blown glass components. In the interior of the house, a unique tiling material, Bubbles, has been used, which works with reflections of light in numerous little glass balls of various sizes.

**Railings and Stained Glass Windows**

The concept of the railings and windows was again prepared by the designer Pavel Baxa, taking account of the rather modern concept of the interior. The minimalist rendering gives prominence to the fused glass with moderate colour accents. All metal parts originated in the companies J.H. KOV and J.H. LAK.

**Sans Souci Czech Glass Alliance Associates Five Companies and Designers:**

Sans Souci: www.sanssoucint.com
J. H. LAK
J. H. KOV
Český Šperk a design
Ludmila Stodolová

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19
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 turning lathes and vertical turning centres, which rank it among the world’s leading manufacturers of this kind of machine tools.

The company’s core programme is the manufacture of REV, SKL, SKA, POWERTURN, POWERTURN Y, SKG, SKAT, SKIQ and recently SKY vertical machining centres.

TRADITION – PRECISION – RELIABILITY

The lathes come in types with table diameters ranging from 800 mm to 5000 mm and are fitted with top-standard electronic elements, which, together with the traditionally high-precision mechanical parts, are a guarantee of high output, reliability, and precision of machining. All these types of machines are intended for work in demanding and complicated industrial applications and are adjusted to the individual requirements of customers.

The different series of machines produced by TOSHULIN vary in their tool exchange systems, the cross section of the slide ram and the general design of the machines.

Other important activities of the firm, in addition to the manufacture of new machines, include the modernisation and overhaul of machine tools.
Study of Technical Branches Is not Just a Trend

Ivan Čapek, Director, the Association of Engineering Technology, e-mail: capek@sst.cz, www.stt.cz

Latest statistics prove that reports about the state of technical education in the Czech Republic are becoming more favourable after a long time – that more students have applied for admission to technical schools in a year-on-year comparison. However, let us not be prematurely optimistic, although the notion of a light blinking at the end of the tunnel is more than enticing. On the other hand, the statistics are certainly not accidental, but reflect certain positive steps on the part of large industrial firms, and somewhere even regional authorities, to support interest in technical schools.

Prediction of EU Labour Market Needs

The lower interest in technical education is by far not merely a Czech problem. At its recent session, the European Economic and Social Committee in Brussels has endorsed the document New Skills for New Jobs. The opinion makes it clear that it is in Europe’s interest to build up capacity and mechanisms for forecasting skills vis-à-vis the needs of the labour market at national and European Union level. Specifically this means improvement in research methods and databases and concurrent updating of supply and demand forecasts.

Association of Engineering Technology and Its Membership

This assessment of the present situation in technical education is based on the experiences and declares needs of a relatively large sample of engineering companies. Over forty of the most important ones in the branch of machine tools and forming machines are grouped in the Association of Engineering Technology. It is a special-interest organisation whose objectives include maintaining the excellent reputation of Czech machines at home and in foreign markets. This is hardly imaginable without an inflow of young staff. In this respect, good results have been produced by cooperation of manufacturers with regional schools and training centres, as well as promotional programmes with good marketing strategies aimed at stimulating students’ interest in the machine tool and forming branches. An excellent response is drawn for example by competitions of future operators of CNC machines among several Czech secondary schools that the Association of Engineering Technology has organised on the occasion of the International Engineering Fair in Brno for the second time this year.

Young Blood Needed in Machining and Forming

The branch of machine tools and forming machines in the Czech Republic has natu-
EDUCATION

rally suffered from the insufficient inflow of young blood for quite some time as well, although it has been one of the few engineering sectors in the country that have recorded considerable growth in the past years. Czech firms as a whole rank among the seven largest manufacturers in Europe. At the same time, as soon as conditions were created within the changes in society, the companies succeeded in the re-orientation of export to the technically advanced countries of Western Europe. Sales increased as well to the so-called growth-economies, where we rank China, India, and Russia. The machinery is normally equipped with state-of-the-art electronics, also for possible unmanned operation. Currently made machine tools thus follow the many years' tradition of highly valued products whose technical parameters are fully on the European level.

Contacts with Production

It is generally believed that schools which successfully attract students are primarily those which closely cooperate with leading engineering enterprises in their regions, enable students to have direct contacts with the production process, and the best of them even have the opportunity to participate in the solution of specific technical tasks. Good examples in this can be the following companies: TOS VARNSDORF, a.s. in Varnsdorf, ŽDAS, a.s. in Žďár nad Sázavou, and KOVOSVIT MAS, a.s. in Sezimovo Ústí, which have successful cooperation with local technical vocational schools.

Clear State Concept Is Essential

It is certain that the conditions for a shift in the professional bias of young people in favour of technical branches will not change unless the task is undertaken also by state bodies, at least as coordinators. They have neglected the issues of development of technical education in the Czech Republic for many years. Hopefully, a really quality, objective, and feasible economic concept of the state will soon be prepared and will clearly show that engineering is one of the sectors on which the Czech economy rests. The current tasks for the relevant state institutions of all levels include the establishment of cooperation between the production sphere and the various parts of the Czech educational system and consequent backing for it, an active participation in the organisation of purposeful campaigns to emphasise the attractiveness of various technical branches, and improved information of students about the possibility of studies and jobs, tasks the urgency of which is sufficiently illustrated by the present gloomy situation.

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Competition of young mechanical engineers in CNC machine tool programming, organised by the Association of Engineering Technology at the Brno International Engineering Fair in 2009
Printing
- Roller coverings
- Printing chemicals
- Printing blankets

Main supplier of rubber rollers for printing machines of the brands: HEIDELBERG, MAN-ROLAND, ADAST, KBA-PLANETA, KBA-GRAFITEC, WIFAG, GOSS, KOMORI, RYOBI

Sleeves

Escalator handrails

Rubber coverings for industrial rollers

Polyurethane application on the roller

Use of technical rollers:
wrapping production, textile industry, steel industry, paper industry, tanning industry, plastic materials industry, furniture industry, chemical industry, food industry, electrical engineering, glass industry, mechanical engineering
Ten Years of Machine Tool Research in Prague

Prof. Jaromír Houša. Head of the Research Centre of Manufacturing Technology, Czech Technical University in Prague, Faculty of Mechanical Engineering, e-mail: j.housa@rcmt.cvut.cz, www.rcmt.cvut.cz

A research facility, founded for the machine tool and forming machine industry and for the Czech engineering sector generally, is used by the industry in the innovation of products. This facility is the Research Centre of Manufacturing Technology, which marks 10 years of its existence this year – it was established in 2000 and has been built with the support of the Czech Republic’s Ministry of Education, Youth, and Sport. Its main purpose was to set up a research base which had not existed in the country. The project, called “The Centre for Manufacturing Technology,” was successfully completed in 2004. It is a well-equipped and staffed research and development institution at the Czech Technical University in Prague, with two external laboratories (at the Technical Universities in Brno and Liberec). An accredited testing laboratory has been established as well, equipped with state-of-the-art measuring equipment for measurements of all important qualities of machine tools.

Active Research Centre

The Centre has been very active. During this first period, it issued 258 research reports and presented partial results in 385 publications. Researchers of the Centre have been granted three utility models. The Centre has also built an accredited testing laboratory. When the project ended in 2004, the Centre was granted a state subsidy for another seven years’ period, for a project called “Research into Manufacturing Technology.” It consists of 3 categories of subjects where research is divided into 13 themes. The three categories are:

- Research into highly productive, accurate, reliable, and ecological machine tools and their components
- Research into the properties of machine tools, their monitoring, and machine intelligence
- Research into advanced, high-performance, and ecological production machines (especially machine tools).

More News

In this project, which is extended until 2011, the Centre is also committed to educate doctoral students. As an innovation, the Centre must acquire 10% of allowable costs of the project solution from the commercial sphere through its own activities. A facility in Plzeň has been added to the external laboratories, and research has been expanded as well, namely to forming machines. A major achievement of the Centre was the solution of two European projects within the 6th Framework Programme – called Ecofit and HardPrecision. The Centre cooperated in these e.g. with TU Stuttgart, IPT Aachen, the Dutch firm Hemtech, with the Spanish research institute Patronik and with other partners. Cooperation is also developing well with UWE Bristol.

The results of this period in the Centre’s operation include 430 publications, 281 research reports, 275 tasks for industry, 96 outputs (prototypes of software and tested technology), 2 Czech, 1 European, and 1 German patent, 11 utility models, 12 courses organised for staff in industry, 1 international conference, 17 defended doctoral theses, and 1 habilitation thesis.

Cooperation with Industry

The interest of industry in cooperation with the Centre has been permanently growing, compared with 2004 it is at six times that level this year. The reason is that, from the beginning, the research programme has been prepared in cooperation with industry and in harmony with the global development trends in the sector. The correctly focused research has thus enabled the workers to acquire knowledge and competences which are relevant for industry, and they now cooperate especially in the innovation of products, regardless of the economic recession. Since 2004, the Centre has cooperated with industrial enterprises on 15 projects supported by the Ministry of Industry and Trade, and is currently cooperating on another eight.

An important activity of the Centre in the last two years has been cooperation with the Association of Engineering Technology in the establishment of the Technology Platform for machine production and in its own activities. A Strategy for the Sector of Machine Tools and Forming Machines for the Years 2010 to 2020 has been undertaken for this platform in cooperation with 64 experts from industry and with the platform’s Executive Committee. This year, the Centre will prepare its “Implementation Action Plan”, which is basically a detailed research plan in the branch of machine tools and forming machines in the Czech Republic for the years 2012 to 2015.

Working for Competitive Industry

The establishment and activities of the Research Centre of Manufacturing Technol-
ogy has brought considerable benefit for the participants in the project, which means universities and the machine tool and forming machine industry in the Czech Republic. The establishment and activities of the Centre have enabled university laboratories to enhance the volume and quality of their research activities, and thus help to increase the prestige of universities. The transfer of the latest research findings to study programmes has brought their considerable improvement, increasing the attractiveness, efficiency, and quality of doctoral study. The Centre has created a base for research and support for the development of new technology solutions in manufacturing companies without which there would be no chance to sustain their position among the most successful manufacturers of machine tools in Europe and worldwide. Its beneficial role is also in its successful acquisition of new technical talent and in the education of a new generation of top specialists. The applications of the outcome of research into new technology solutions in the area of machine tools, which originate in the Centre, are a basic prerequisite for the competitiveness of Czech products.

### Poll of Successful Companies Operating in the Area of Engineering and Related Branches

**EXPRESS-INTERFRACHT mezinárodní spedice CZ s.r.o.**

Mičkova 64, 614 00 Brno  
Phone: +420 548 426 411  
E-mail: express@express-interfracht.cz  
www.express-interfracht.cz

**Turnover:** EUR 28 494 000  
**Number of employees:** 28  
**Export:** to CIS states, the Ukraine, Balkan states, the USA

As an international freight forwarder, the company concerns itself with the transport of different kinds of goods – from bulk cargoes, such as timber and scrap iron, to whole plant and extra-large items. We deliver these cargoes by rail, road, water, air and their combination, and find the optimum transport route every time. Besides the actual transport of the goods, we also secure all related transport services – customs services, insurance of consignments, packing, loading and unloading, tracing and tracking the goods, complaints proceedings and price and tariff consulting. Together with the parent company based in Vienna, this firm is part of Austria’s strong Rail Cargo Austria holding, with affiliations all over Europe.

**What is the secret of your successful weathering of the global financial crisis?**

Our work depends on orders for transport we get from our permanent customers, with whom we rise and fall. Our only opportunities are the new acquisitions by our managers, who obtain contacts to new clients, and new projects, with new transport deals.

**Can you describe one of your most important recent orders?**

This year we arranged the transport of 100 TATRA lorries to Azerbaijan. Because of the large number of lorries and the demanding nature of the transport all along the route, the consignment had to be divided up and loaded on to two entire trains. This required a sufficient number of special low-platform wagons with wheel spacing suitng this country’s track gauge and, after re-loading, the broad-gauged CIS tracks. Both these trains were under the continuous supervision of our employees and, after leaving EU territory, they were placed in the care of private security guards, who accompanied the consignment up to the destination station, where it was handed over to the recipient. The whole operation was carried out smoothly, without any complications, attested to not only by its short duration – taking only three weeks – but also mainly by the satisfaction of our customer.

### TOP FIRMS IN CZECH ENGINEERING

<table>
<thead>
<tr>
<th>Name</th>
<th>Based in</th>
<th>Sector</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>ČKD Blansko Holding, a.s.</td>
<td>Blansko</td>
<td>water turbines and hydrotechnological equipment, lathes, machinery works</td>
<td><a href="http://www.ckdblansko.cz">www.ckdblansko.cz</a></td>
</tr>
<tr>
<td>KrálovoPolská, a.s.</td>
<td>Brno</td>
<td>engineering equipment, cranes, and lifting equipment</td>
<td><a href="http://www.kralovopolska.cz">www.kralovopolska.cz</a></td>
</tr>
<tr>
<td>Prokop Invest, a.s.</td>
<td>Pardubice</td>
<td>whole plants, reconstruction of technological nodes, single machines</td>
<td><a href="http://www.prokop.cz">www.prokop.cz</a></td>
</tr>
<tr>
<td>Rotter s.r.o.</td>
<td>Vír</td>
<td>manufacture of parts for the engineering industry</td>
<td><a href="http://www.rotter.cz">www.rotter.cz</a></td>
</tr>
<tr>
<td>SE-MI service a. s.</td>
<td>Ostrava</td>
<td>mining equipment</td>
<td><a href="http://www.se-mi.cz">www.se-mi.cz</a></td>
</tr>
<tr>
<td>Strojferr, s.r.o.</td>
<td>Frydek-Místek</td>
<td>mining machines and equipment</td>
<td><a href="http://www.strojferr.cz">www.strojferr.cz</a></td>
</tr>
<tr>
<td>Strojimy Poldi, a.s.</td>
<td>Kladno</td>
<td>farm machinery crankshafts, building machines</td>
<td><a href="http://www.strojpoldi.cz">www.strojpoldi.cz</a></td>
</tr>
<tr>
<td>Škoda Machine Tool, s.r.o.</td>
<td>Plzeň</td>
<td>heavy-duty milling and boring machines, heavy-duty lathes</td>
<td><a href="http://www.cz-smt.cz">www.cz-smt.cz</a></td>
</tr>
<tr>
<td>T M T spol. s r. o. Chrudim</td>
<td>Chrudim</td>
<td>equipment for technological and inter-operational transport</td>
<td><a href="http://www.tmt.cz">www.tmt.cz</a></td>
</tr>
<tr>
<td>Tajmac - ZPS, a.s.</td>
<td>Zlin</td>
<td>vertical and horizontal machining centres, CNC lathes, etc.</td>
<td><a href="http://www.tajmac-zps.cz">www.tajmac-zps.cz</a></td>
</tr>
</tbody>
</table>
KOVOSVIT MAS, a.s.
Náměšť Tomáše Bati 419
91 02 Sezimovo Ústí
Phone: +420 381 63 1111
www.kovosvit.cz
www.kovosvit.com

Turnover: EUR 26 million
Number of employees: 560

KOVOSVIT MAS is a traditional Czech manufacturer of modern metal-working centres and CNC lathes with a history of noteworthy development and a strong technical background. The company has a seventy years’ tradition in the manufacture and development of machine tools and boasts a number of awards for its technical contribution to the development of machine tools in the Czech Republic. Its production is orientated mainly towards subcontractors for the car-making, power-generating, aircraft, and engineering industries. KOVOSVIT MAS offers its clients comprehensive services, individual solutions, flexibility, and above all products of the highest quality with corresponding servicing. MAS started the manufacture of machine tools as far back as 1939, and in the course of years it has developed and successfully placed on the market a large number of machine tool types. Its drilling and milling machines include types such as VKW 100, MCV 32, and MCV 1000 HSC, the development of which has resulted in the manufacture of one of the most advanced machines, MCU 63OV – 5X for continuous five-axle machining. In the area of lathes and turning machines, KOVOSVIT has a very strong technical background, with a range of machines including, for example, the RS revolver lathe, the SPT 16 semi-automatic lathe, and patented design of the MCSY 80 machine.

The company’s current production is drawing on its long experience of machine tool production and construction and is a guarantee of reliability for its clients.

Could you mention some of the recent achievements of your company which you value most?

KOVOSVIT MAS, a.s. participates regularly in competitions at trade fairs and exhibitions and it has won all sorts of prizes, gold medals, and awards for design. The last time it won a prize at the 2010 International Engineering Fair in Nitra, Slovakia, for its MMC 1500 vertical portal centre.

Can you give a brief description of your co-operation with Czech technical universities? What are the practical results of this co-operation?

The company co-operates with leading Czech universities, e.g. the Technical Universities in Prague, Brno, and Plzeň, and the VCSVTT research centre. It also co-operates with the Ministry of Industry and Trade in the framework of subsidy projects. Basically, the co-operation concerns the construction and development of new machine tools.

NOEN, a.s.
Václavské náměstí 802/56, 110 00 Praha 1
Phone: +420 224 032 510
E-mail: noen@noen.cz, www.noen.cz

Number of employees: year 2010 - 100
Export: Documentation for VAMH/SANDVIK, final customers in China, Iran, Bulgaria, UK, Australia, South Africa

NOEN, Inc. was established in 1997. There are 90 highly educated and qualified experts with long-term experience working for NOEN. They use up-to-date hardware and software when preparing analyses, projects, and expertises. They also supervise operations of bucket wheel excavators, conveyor systems, tripper cars, spreaders and coal handling equipment. In case of mining equipment modernisation, they take care about reliability and life cycle improvement.

The scope of NOEN turn-key entrepreneurial abilities comprises lay-out design, basic design, static and fatigue (FEM) calculations, detail design, and supervision of outsourced services during production and erection phase. NOEN focuses on new bucket wheel excavators designing, belt conveyor modernisation, and coal handling equipment designing. There are four NOEN subsidiaries located in Prague, Uničov, Chrudim, and Bílina.

What can your company offer foreign customers?

The NOEN’s core business is turn-key management and project design in the following areas:

- Open-cast mining equipment
- Long-distance and technological transport of loose materials
- Material handling equipment
- Stock-yard (coal handling) equipment

Within areas of the core business mentioned above NOEN offers:

- Lay-out design, basic design, static and fatigue (FEM) calculations, detail design
- Expertise, consulting, and technical assistance
- Turn-key management, supervision of outsourced services during production and erection phase.

What is your firm especially proud of, which recent project do you value most?

One of the most important projects is the complete documentation of the KK 1300 bucket wheel excavator – new NOEN design of the TC2 series.

NOEN is one of six firms worldwide with the specific expertise to be able to make complete documentation for such kind of projects.
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www.bvv.cz/msv

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7th International Machine Tools Exhibition
www.bvv.cz/imt

13th International Foundry Fair
www.bvv.cz/fondex

20th International Welding Engineering Fair
www.bvv.cz/welding

3rd International Surface Technology Fair
www.bvv.cz/profintech
Horizontal milling and boring machines
Machining centres • Portal type machining centres

TOS VARNSDORF PRODUCTS ARE MARKED FOR THEIR HIGH PERFORMANCE, ADVANCED DESIGN AND RELIABILITY.

The technological use of TOSotec milling and boring centres includes both conventional machining (milling, drilling and boring) by means of a travelling or non-travelling (enabling higher revolutions) spindle and special technologies.

WRD 170 (Q) and WRD 130/150 (Q) horizontal milling and boring machines are used especially for highly efficient universal chip machining of non-rotating, mainly large and heavy workpieces.

WHN 110/130 (Q, MC) machines are used mainly for productive and efficient universal chip machining of non-rotating medium-sized and medium-heavy workpieces.

The WH(Q) 13 CNC is the company’s most successful machine. It is intended for precision milling, coordinate drilling, boring and cutting.

The WH(Q) 105 CNC is a modern high-power machine with continuous control.

Portal type machining centres FPPC and FVC are up-to-date technically developed CNC centres intended especially for the production of moulds, pressing tools, die blocks, automobile and railway frames.

NEW GOALS NEED NEW SOLUTIONS

TOS VARNSDORF a. s., Říční 1774, 407 47 Varnsdorf, Czech Republic. Phone: +420 412 351 203, Fax: +420 412 351 289, E-mail: info@tosvarnsdorf.com, www.tosvarnsdorf.com, www.tosvarnsdorf.eu