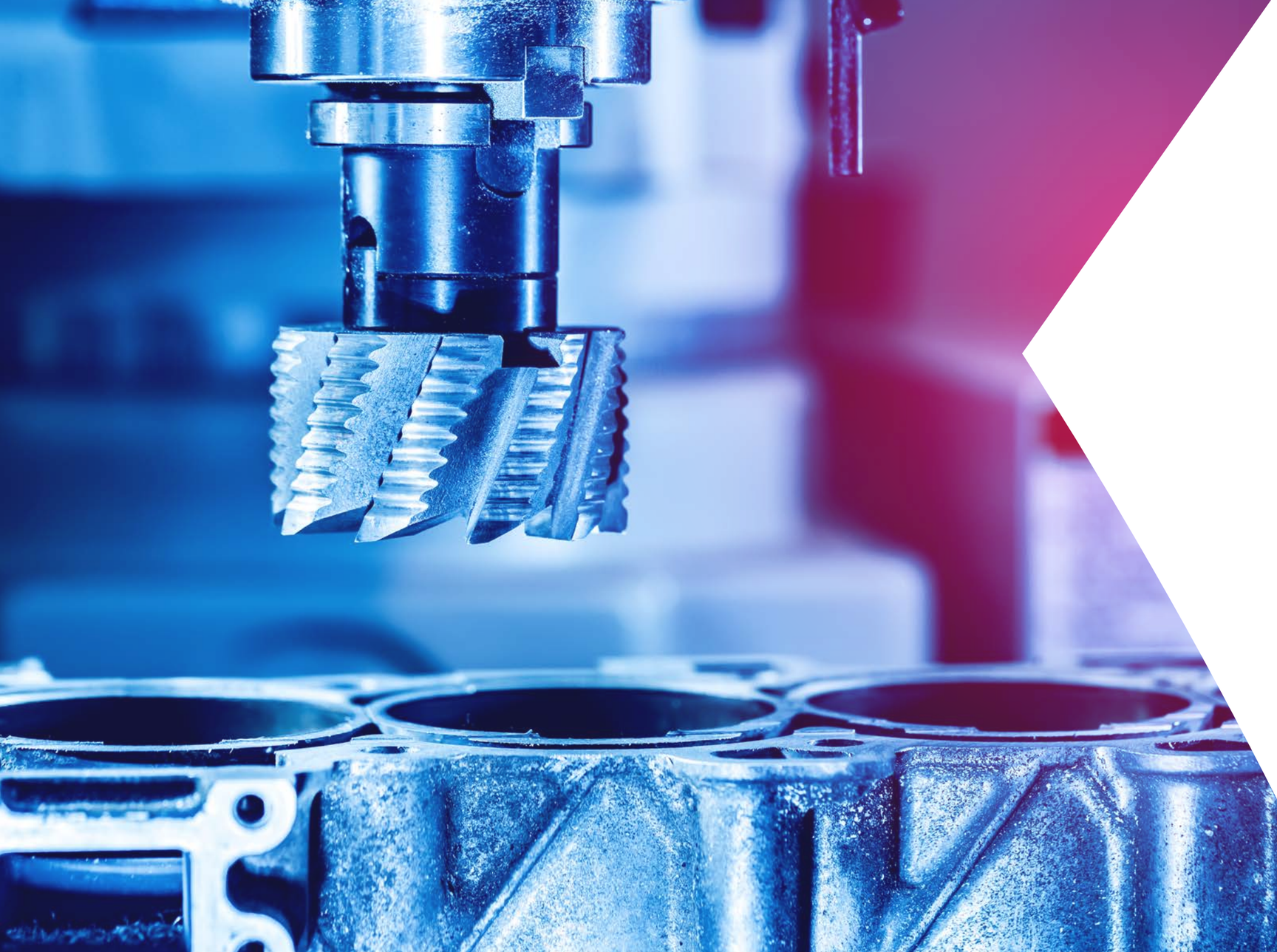
Advanced Manufacturing

CzechTrade
Czech Trade Promotion Agency

Discover Czech Innovators
and Tech Visionaries



Content

57 offices operating in 65 countries worldwide

About CzechTrade

The Czech Trade Promotion Agency is proud to present Czech Advanced Manufacturing.

This brochure highlights the trade and manufacturing potential of the Czech advanced manufacturing sector, offering international partners insight into its dynamic growth and innovation. The featured companies serve as a sample of the industry's expertise and capabilities.
For more information on Czech Advanced manufacturing companies and business opportunities, contact us at supplier@czechtrade.gov.cz

CzechTrade is the governmental trade promotion agency of the Czech Republic established by the Ministry of Industry and Trade. Its main objective is to develop international trade and cooperation between businesses in the Czech Republic and around the world. Wherever in the world you are, the agency is your official contact partner when looking for qualified Czech-based companies.

- More than 25 years of professional partnership
- Free, mainly customised services
- 57 offices operating worldwide
- Excellent overview of Czech companies and their business potential

CzechTrade
Czech Trade Promotion Agency

The Perfect Way to Find Your Business Partners

Sourcing Days / Tailored events to meet your needs

Specify your product/service requirements, define the qualifications required for your potential product and service supplier, and we will arrange one-to-one meetings followed by company visits in the Czech Republic. This service saves you time:

— Precise knowledge of Czech manufacturers and their production potential
— Custom market screening – we identify potential suppliers according to your requirements
— Supplier shortlist – after reviewing each applicant's profile, you can select the companies you wish to meet
— All-inclusive package – from providing meeting rooms to accompanying you to the companies' premises, we cover it all.

Czech Exporters Directory

Official online database of Czech exporters and the simplest tool to help you find potential business partners in the Czech Republic.

Czech Business Partner Search

If you are looking for a partner to assist you with production or you need a service provider, you can approach our experts with your specific request. CzechTrade will gladly help you to get in touch with the relevant Czech companies.

Personal consultation with our representative abroad

Online form

BusinessInfo.cz

The official business portal helping foreign businesses navigate the Czech business environment.

Current information about the conditions for business, investment and trade opportunities on the website.

Advanced Manufacturing Excellence in the Heart of Europe

Czech Republic: A Manufacturing Powerhouse

The Czech Republic has a well-developed industrial base and a high level of expertise across a broad range of technological fields. The country ranks 8th globally in Harvard University's Economic Complexity Index, which measures the diversity and sophistication of a nation's export portfolio. Manufacturing contributes to more than 25% of the Czech Republic's gross value added, which ranks among the highest in Europe and globally.

Mechanical engineering has been a key pillar of the Czech economy since the early 19th century. Today, the country offers a stable economic environment, advanced technological capabilities, and a robust research and development ecosystem, making it an ideal location for establishing and expanding industrial operations.

Global Companies Choose the Czech Republic

The presence of major global players demonstrates the country's attractiveness for international investment. Companies such as ABB, Bombardier Transportation, Daikin, Doosan, Edwards, GE Aerospace, Hitachi Energy, Honeywell, Komatsu, Otis, Rieter, Robert Bosch, Sandvik, Siemens, and many others have already set up manufacturing plants and R&D centers across the country.

High-Tech Specialization Areas

Czech companies are internationally competitive in a number of high-tech areas, including the production of electron microscopes, precision machinery and tools, monocrystalline materials, electron beam lithography for holography, and air rifles. In addition, they are at the forefront of nanostructured and crosslinked polymer research and the development of specialised nanoparticles.

The Czech Republic is currently the 8th largest exporter of machine tools per capita in Europe, with high-tech products accounting for over 20% of total exports.

Emerging technologies and innovation

With a strong tradition in chemistry, electronics, textile production, and materials science, the Czech Republic is emerging as a global leader in applied nanotechnology. It is a key supplier of electron microscopes, monocrystalline materials, and equipment for nanofiber production, and is now also making significant strides in semiconductors, nanomedicine, and next-generation batteries.

A consistent number of engineering graduates and a well-developed R&D infrastructure further support the growth of these high-tech sectors.

Introduction to Czech Engineering and Industry 4.0

Czech industry is actively developing automation, robotics, 3D printing and Industry 4.0 concepts with a view to strengthen its position on the global technology map. The introduction of these innovations is supported by government strategies such as the National RIS3 Strategy and the Innovation Strategy of the Czech Republic, which promote digitisation and the use of advanced technologies across sectors. Robotics and automation are becoming key tools for increasing productivity and production efficiency. Companies are investing in the integration of industrial robots and data platforms that improve production management and logistics.

The Czech government supports these innovations through subsidies and grants such as the "Digital Enterprise" and the "Virtual Enterprise" programmes, which facilitate the digitalisation of companies.

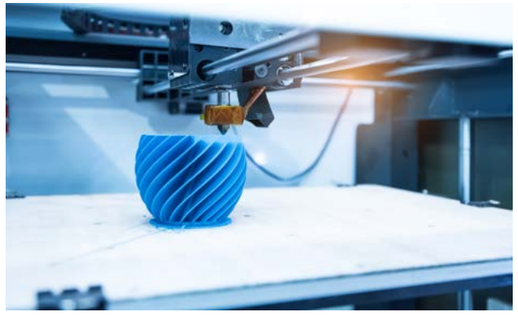
As an example, SMEs can benefit from subsidies to implement non-productive digital technologies and to develop their employees' skills. This support allows Czech companies to adapt to current technological trends, increase their resilience to crises and achieve sustainable growth.

Continued focus on automation, robotics, application of advanced manufacturing technologies and materials, together with digitalisation and the development of artificial intelligence, strengthens Czech industry on the international stage and ensures its readiness for future challenges.

Fun Facts

The Czech company Be3D is one of the pioneers of 3D metal printing in the Czech Republic. Thanks to advanced methods of 3D printing of metal materials, Czech companies have established themselves on the international additive manufacturing market.

ZPA Pečky, a well-known Czech company, developed highly sophisticated PLC (programmable logic controller) and SCADA systems for controlling automated production processes. These technologies are used in industries ranging from automotive to energy.



Prusa Research ranks among the global leaders in 3D printing. With over 120,000 printers produced annually in Prague and shipped to more than 160 countries, the company has made 3D printing accessible to hundreds of thousands of users worldwide.

Sewio Networks, a Czech technology company, developed IoT (Internet of Things) based location systems that enable real-time tracking of materials and products on production lines. This technology is used to optimise production and minimise errors in storage and logistics.

The first CNC (computer numerical control) machine in Czechoslovakia was developed in 1964 by ZPS (now known as TAJMAC-ZPS). This advanced machine revolutionised production accuracy and efficiency.

Czechoslovakia began producing tractors in the 1920s, with Škodovy závody leading the way. Later, companies like ČKD and Wikov followed. After World War II, Zetor launched its own tractor line, becoming a lasting symbol of Czech agricultural technology.

Engineering Tradition of the Czech Republic

The Czech Republic has an exceptionally long and continuous tradition in engineering, which has ranked it among the most industrialised countries in Europe since the 19th century. This tradition is based on strong technical training, high quality production and the ability to combine innovation with precision craftsmanship.

Industrial Revolution

At the time of the Industrial Revolution, especially in the 19th century, a number of strategic industries emerged in the Czech lands - mainly engineering, textiles, locomotive manufacturing, metallurgy, heavy engineering, armaments, glass and chemicals. The Czech lands were then part of the industrial core of the Austro-Hungarian Empire and produced steam engines, turbines, sugar factories and machine tools, to name a few.

Among the key companies of that time were, for example, Škoda Plzeň (founded in 1859), which became a symbol of heavy engineering and arms production. Others include ČKD Praha (founded in 1871), a major manufacturer of locomotives and machinery, or Tatra Kopřivnice (founded in 1850), one of the oldest car manufacturers in the world, which is still operating today. They are complemented by Zetor Brno (since 1946), known for its long tradition in tractor production, and Waltrovka (since 1911), which became famous for the manufacturing of aircraft engines and cars and influenced the development of Czech aviation and the automotive industry.

Interwar Period

In the interwar period, Czechoslovakia was one of the most industrialised countries in the world. The importance of engineering production remained crucial even during the post-war period and persists to this day - modern Czech companies continue this tradition in the field of transport engineering, power equipment, precision engineering, aerospace and automation.

To this day, engineering is one of the key sectors of the Czech economy and an important export segment, which maintains a high reputation for technical know-how, quality and the ability to innovate.

An important example of the Czech Republic's strong engineering tradition are the Škoda factories, whose history and technological development illustrate the key role of engineering for domestic industry and global markets. From steam engines and steel structures to energy equipment and transport vehicles, Škoda has become synonymous with quality and technical expertise. Its development reflects the transformation of engineering over more than 150 years – from the Austro-Hungarian monarchy through the world wars and socialism to the current globalised economy.

Founded in 1859, the company expanded significantly after 1866 under Emil Škoda, who turned the foundry into a modern engineering enterprise. In 1886, he established his own steelworks and laid the foundation for the company's international competitiveness.

At the turn of the century, Škoda became the main supplier of heavy artillery for the Austro-Hungarian army. During World War I, arms production expanded further, confirming the company's leading position among European manufacturers.

After World War I

After the war, production diversified. In 1925, the Škoda Auto brand was created by merging with Laurin & Klement, under which the company also produced trolleybuses, locomotives and other means of transport.

During World War II

During World War II, the company was absorbed into the German war industry. Post-1945 nationalisation led to a focus on heavy engineering and exports to the Eastern Bloc as well as developing countries.

Since 1989

Since 1989, Škoda has undergone restructuring. Its successor companies – Škoda Auto, Škoda Transportation, ŠMT and Škoda JS – continue a 160-year tradition of innovation and technical excellence. Their products, from cars to nuclear technology, are used worldwide. Emil Škoda's legacy remains a key part of Czech industrial identity.

ČKD: An Icon of Czech Engineering

ČKD (Českomoravská Kolben-Daněk) was founded in 1927 by merging two important companies: the electrical engineering company Českomoravská-Kolben (1896) and the engineering company Breitfeld-Daněk (1854). It soon became one of Europe's leading manufacturers. Under the motto "we produce everything from pins to locomotives" it produced, among other things, Prague trams of the T3 type - the most widespread car of its kind in the world, steam and diesel locomotives, trams, trolleybuses, tractors, automobiles and even aircraft. Under the leadership of Emil Kolben, who also gained experience with Thomas Edison, ČKD became a technological leader and a competitor to Škoda. Its well-known projects include the Petřín Lookout Tower or the Industrial Palace.

During World War II it was renamed BMM and produced armoured vehicles for the Wehrmacht. After nationalisation in 1945, the company grew - especially the transport division of ČKD Tatra, which became famous for the production of trams and trolleybuses.

At its peak, ČKD employed up to 50,000 people. After 1989, ČKD underwent a profound transformation, with individual parts of the company gradually becoming independent and being passed into the hands of various new owners - including foreign corporations. For example, some transport divisions were taken over by Siemens, while others continued with their original production under new names and structures.

Today, the legacy of ČKD is carried forward by companies such as ČKD Blansko-OS (carousels), CZ Loko (locomotives) or Siemens Mobility (rolling stock for urban and suburban transport).

Did you know?

ČKD Choceň was among the first Czechoslovak companies to produce heat pumps in the 1980s, pioneering innovations in sustainable heating technology.

Škoda Auto and TATRA

The Czech Republic is home to two of the oldest car brands in the world - Tatra and Škoda Auto. Founded in 1895, Škoda Auto is still one of the world's most important car manufacturers! Tatra was founded in 1850 as a carriage manufacturer and started producing cars and trucks in 1897. Tatra Trucks produces legendary off-road trucks that are known for their durability and ability to handle even the toughest conditions. Their vehicles are even used in extreme conditions on expeditions such as the Dakar Rally!

WALTER (Waltrovka)

Waltrovka (the Walter company) is an important engineering company founded by Josef Walter in Prague's Smíchov neighbourhood in 1911. From the beginning, it specialised in motorcycles, motorised tricycles and from 1913 also automobiles. During the 1920s and 1930s, the factory in Jinonice - called Waltrovka after its founder - became one of the largest manufacturers of aircraft engines in Central Europe, including radial, in-line and licensed types for civil and military aircraft.

After World War II, it was nationalised, renamed Motorlet and continued to manufacture engines and jet turbines until its privatisation in the 1990s and a merger with GE Aviation in July 2008. Waltrovka thus represents a key chapter of the Czech engineering tradition and innovation in the automotive and aerospace sector.

On 25 January 1921, the National Theatre in Prague hosted the premiere of Karel Čapek's R.U.R., a play in which the word ROBOT appeared for the first time and was then adopted by the whole world.

The Czech Masonry robot

The Czech masonry robot developed by KM Robotics replaces the work of a masonry crew and builds twice as fast as five masons. The robot is capable of building 10 m^2 of wall per hour and operates day and night. It is equipped with sensors to ensure onsite safety and is operated via a tablet. It needs brick feeders, water and electricity to work.

It was developed over a period of 12 years and the rights to use it were purchased by brick manufacturer Wienerberger for €800,000 per unit. The robot can move independently and handle walls up to 2.75 metres high. In addition to KM Robotics, DEK is also working on similar machines in cooperation with the Czech Technical University (CTU).

Agricultural Robot

The Terms company is developing an advanced solution for modern agriculture - the Roboton Farmer autonomous robot. This agricultural robot, the prototype of which was presented at the Země živitelka - International Agricultural Exhibition in České Budějovice, has dimensions of 2.5 metres in width, over 2 metres in length and approximately 2 metres in height. Without a filled tank, it weighs approximately 1.5 tonnes. Once programmed, it can independently carry out activities such as soil loosening, planting, weeding and irrigation. The machine is expected to be launched in 2026.

Subsectors of Advanced Manufacturing defined by material

Metals

The combination of technologies working with metal represents a wide range of processes, from traditional engineering to the most modern methods. It includes cutting and joining materials using laser, plasma, waterjet, welding or gluing, as well as milling, various surface treatments and the use of robotics. In addition to these conventional methods, specialised technologies such as high-frequency laser or ultrasonic micromachining and laser cleaning are also used. These technologies are based on a long tradition and extensive experience, particularly in the automotive and aerospace industries, which allows them to reach a high technical level and meet the strict standards typical of these two sectors.

Plastics

Plastics are widely used materials in modern manufacturing due to their versatility, lightness and durability. They are produced in various types and forms, such as thermoplastics, thermosets or elastomers, and are used in many industries, including automotive, electrical, medical and consumer goods. Plastic materials enable the production of complex shapes, are affordable and can be recycled for more sustainable production.

Special Materials

Special materials are highly technologically advanced materials that offer unique properties for demanding applications in a variety of industries. These materials, such as high-strength alloys, composites, ceramics or high-temperature and corrosion-resistant nanomaterials, are designed to meet specific performance, durability and reliability requirements. They are used in aerospace, automotive, electronics, medicine and other areas where high demands are placed on quality and safety.

Subsectors of Advanced Manufacturing defined by technology

Automated Handling Technology

Automated handling technology is a modern solution for the efficient and safe movement of materials and parts in production and logistics processes. The use of robotic systems, conveyors, automated handling trolleys and other innovative equipment significantly increases productivity, reduces labour costs and minimises the risk of human error. Czech technologies offer a wide range of equipment that brings reliability, flexibility and process optimisation to a variety of industries.

Conveyors and Conveyor Systems

Conveyors and conveyor systems are key elements of modern manufacturing, ensuring the efficient and smooth movement of materials, components and finished products between production stations. Thanks to the wide range of conveyor types - from belt and chain conveyors to roller and screw conveyors - the conveyor can be easily adapted to the specific needs of the production process. The Czech Republic offers innovative solutions that increase productivity, minimise downtime and optimise production logistics, thus contributing to better efficiency and lower costs.

Additive Manufacturing Technology

Additive manufacturing technology, simply referred to as 3D printing, is a revolutionary approach to manufacturing that enables the creation of complex parts and components directly from digital models by layering materials. This technology offers high flexibility, speed of production and the ability to optimise designs that would otherwise be difficult to achieve using traditional methods. These include various recesses to reduce material consumption and weight, or internal spaces to allow more efficient cooling. Czech industry is constantly moving forward in the field of additive manufacturing and Czech companies have successfully established themselves on the international scene thanks to their innovative approach and quality products. Their solutions are used in various industries, from prototyping to serial production, both for metal or plastic applications and for working with more special materials ranging from composites to ceramics.

Lasers

Lasers are widely used in engineering for precise and efficient processing of metals and plastics. Their ability to work with high precision, at high temperatures and while minimising mechanical stress on materials makes them ideal for applications such as cutting, welding, drilling, engraving or even surface finishing. The use of laser technology in metals and plastics brings the benefits of speed, high joint quality and the ability to process complex geometries. Czech companies offer modern laser systems that ensure efficiency, precision and flexibility in engineering processes.

Did you know?

ELI Beamlines is a state-of-the-art international laser research centre in Dolní Břežany near Prague, equipped with the most powerful laser systems in Europe. It focuses on basic and applied research in areas such as plasma physics, materials science, biomedicine and the development of new radiation sources. Key technologies include the L4 Aton laser with up to 10 petawatts of power - one of the most powerful lasers in the world.

The Centre is a part of the European ELI ERIC infrastructure and offers open access to scientists and commercial partners. It works with industry to develop advanced detectors, optical components, radiation diagnostics and more efficient methods for hadron therapy, for example. ELI Beamlines offers companies not only unique experimental facilities, but also the opportunity to establish international partnerships and engage in cutting-edge research and technology transfer.

The HiLASE Centre is a state-of-the-art research facility of the Institute of Physics of the Czech Academy of Sciences, located in Dolní Břežany near Prague. It focuses on the development of diode-pumped solid-state lasers with a high repetition rate and energy - so-called "superlasers for the real world". Its technology, such as the BIVOJ laser (the most powerful of its kind in the world), is used primarily in industry, for instance in the laser hardening of metal parts (Laser Shock Peening), precision micromachining or the development of antibacterial surfaces. The Centre also collaborates with industrial partners and European institutions, participates in technology transfer and actively contributes to global developments in laser physics.

Measurements and Inspections

Measurement plays a key role in the automation of processes in companies, as it enables accurate monitoring and control of the performance of production and logistics systems. With the help of modern measuring technologies such as sensors, cameras and online monitoring systems, the quality, speed and efficiency of production can be monitored in real time. Integrating these measurement systems into automated processes ensures higher accuracy, reduced errors and optimised production costs, leading to better product quality and increased productivity. Czech companies offer solutions for efficient and reliable measurement that support automated processes and contribute to the long-term competitiveness of companies.

Did you know?

Czech startup Fravebot has developed a robotic agronomist designed for greenhouse tomato cultivation. The robot, called Fravebot, measures 4.5 metres in height and is equipped with artificial intelligence that allows it to detect pests, identify diseased leaves and estimate harvest volume. Each check compares the current plant condition with previous records and provides farmers with valuable information for effective interventions. This innovative approach won an award at the European Congress of Young Farmers in Brussels.

Smart Solutions and Software/Hardware

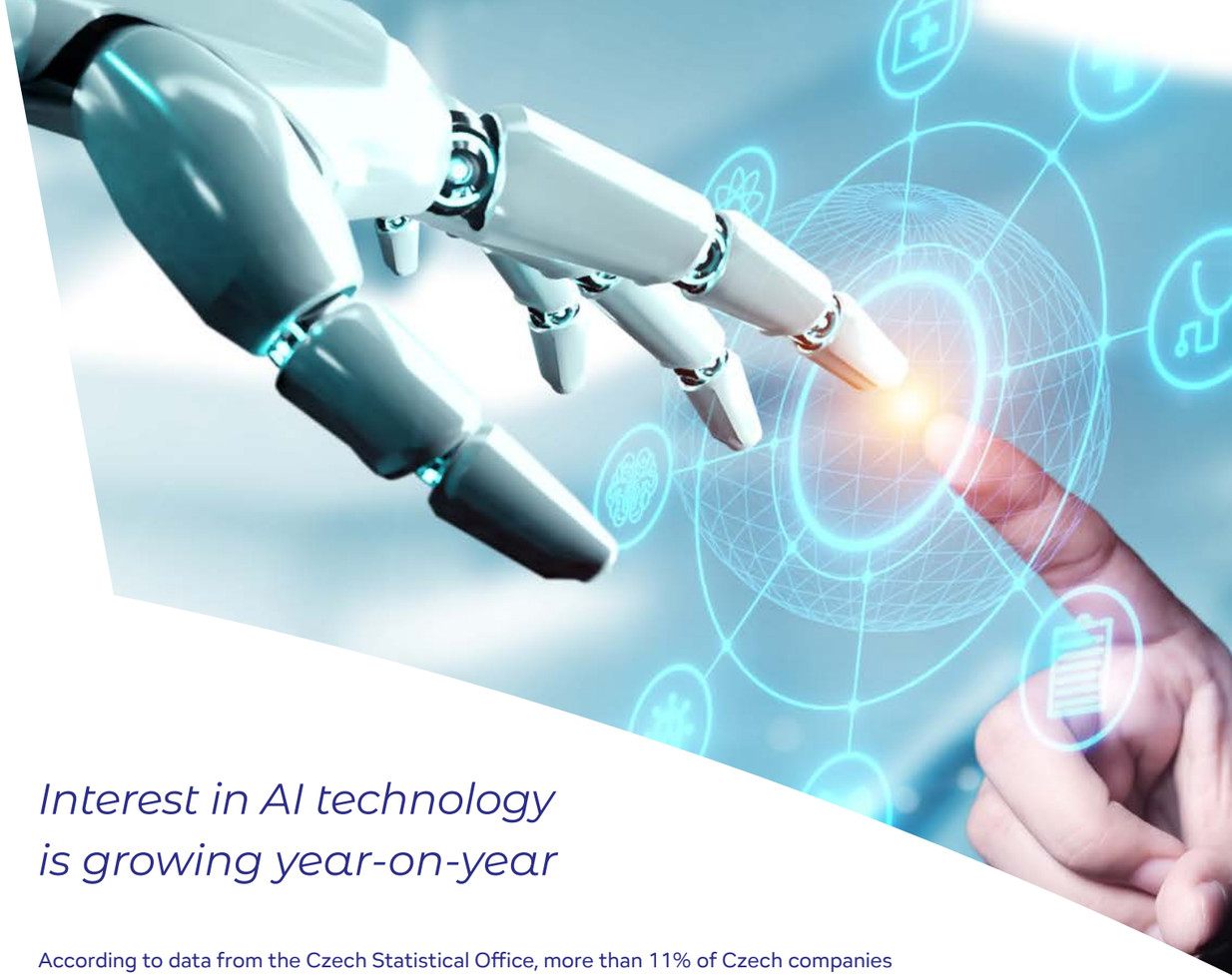
Smart manufacturing solutions involve the use of advanced technologies such as IoT (Internet of Things), artificial intelligence, robotics and automation to create intelligent, connected and autonomous manufacturing processes. These solutions enable real-time data collection and analysis for better predictive maintenance, production optimisation and rapid response to changes in demand or production conditions. Smart technologies increase the efficiency, quality and flexibility of production processes, reduce costs and allow production to adapt to current market requirements.

Packing Machines

Packing machines in production are key devices for automating the packaging process, ensuring fast, efficient and accurate packaging of products in different types of packaging. These machines, including horizontal, vertical, labelling and cartoning systems, significantly increase productivity, reduce labour costs and ensure high quality packaging. Packing technologies are designed for a wide range of materials and products, from food and cosmetics to industrial goods. Czech companies offer modern packing machines that optimise production processes, ensure high flexibility and adaptability in fast-changing production environments.

Single-Purpose Machines

Single-purpose machines are highly specialised devices designed for specific tasks in production processes. These machines are optimised for maximum efficiency, accuracy and performance in repetitive operations, ensuring high productivity and minimising costs. They are used in various industries such as automotive, electrical engineering, food and pharmaceuticals, where large quantities of identical products need to be produced or specific operations need to be carried out with a high degree of automation.



Interest in AI technology is growing year-on-year

According to data from the Czech Statistical Office, more than 11% of Czech companies use some type of AI technology, which is almost 100% more than in 2023. AI is most often used by large enterprises, and the share of these companies using this technology rose above 40% for the first time in 2024. The most commonly implemented technologies include generative AI, natural language processing and image analysis.

Source: Czech Statistical Office, percentage of the total number of enterprises with 10 or more employees in a given year

We showcase a representative selection of Czech export companies active in Advanced Manufacturing with extensive international business experience.

Advanced Metal Powders

Advanced Metal Powders s.r.o., established in 2014 and headquartered in Kravaře, Czech Republic, specialises in the production and recycling of non-ferrous metals and their alloys. The company operates state-of-the-art plasma metallurgy furnaces, enabling the processing of high-melting-point metals such as titanium (Ti), nickel (Ni), niobium (Nb), zirconium (Zr), tantalum (Ta) and tungsten (W).

Additionally, Advanced Metal Powders uses atomisation technology to produce spherical metallic powders with particle sizes ranging from 20 to 120 microns, achieving a high sphericity of 0.97. These powders are available in pure metals like titanium, molybdenum, tantalum and zirconium, or in custom alloy compositions. Their production offers both small volumes up to 10 kg, as well as volumes up to 5 tons per year.

The company offers a range of services, including laboratory analysis (digital and electron microscopy, chemical composition testing), 3D metal printing with consulting on topological optimisation and custom alloy production.

Advanced Metal Powders is a proud member of the National Competence Centre for Materials, Advanced Technologies, Cooperation and Applications (NCK MATCA), fostering collaboration between academia and industry to drive innovation in advanced technologies.

www.metalpowders.cz

Advantage-fl.cz

Advantage-fl specialises in high-precision surface finishing technologies for additive manufacturing, precision engineering and advanced production processes. It provides innovative solutions to optimise surface properties, enhancing functionality, aesthetics and durability.

Its automated OTEC systems efficiently remove surface imperfections, homogenise material structures and achieve ultra-smooth finishes—all with maximum speed and repeatability. The company utilises mechanical mass finishing and electropolishing, significantly reducing friction, improving corrosion resistance and preparing components for subsequent processes.

Beyond engineering applications, its expertise also extends to the jewellery industry, where it delivers exceptional surface refinement and offers galvanic plating solutions in a full range of gold, silver, rose gold, rhodium and ruthenium finishes. This ensures superior aesthetics and long-lasting brilliance.

With an expanded 3D printing portfolio and a new partnership with Flashforge, Advantage-fl provides customers access to cutting-edge additive manufacturing solutions, opening new opportunities for innovation and production efficiency.

Thanks to years of expertise and close collaboration with leading manufacturers, the company offers comprehensive services for industries such as aerospace, automotive, medical, precision mechanics and jewellery—ranging from sample testing to full-scale process optimisation.

Advantage-fl stands as a reliable partner offering cutting-edge technology, expert consulting and exceptional surface quality for a wide range of products.

www.advantage-fl.cz

ATC DRAŠAR

ATC Dražar s.r.o. was established as the continuation of a company founded in 1993, building on its expertise and legacy to deliver advanced solutions in automation and intralogistics. The company specialises in the automation of production and warehouse intralogistics, construction of conveyor systems and development of single-purpose machines. Its comprehensive services include analysis, customised design, complete system implementation and ongoing maintenance. ATC Dražar collaborates with reputable robotics companies and technology integrators, and their commitment to technological innovation and customer satisfaction has established them as a fast and reliable partner. Their products and services are used by both large multinational corporations and small local companies.

The company offers a diverse range of conveyor systems, including roller, chain, belt, modular and timing belt conveyors and pallet circulation systems. It also supplies conveyor components such as electric rollers, pulleys, ball units and aluminium profiles, and serves as a partner in servicing and repairing their customers' existing conveyors. The company is also a distributor of air cushions, which are used as a specialised handling tool in many industries.

As a family-owned company, ATC Dražar emphasises fair and honest relationships and strives to offer clients comprehensive solutions that increase efficiency and productivity.

www.drasar.cz/en

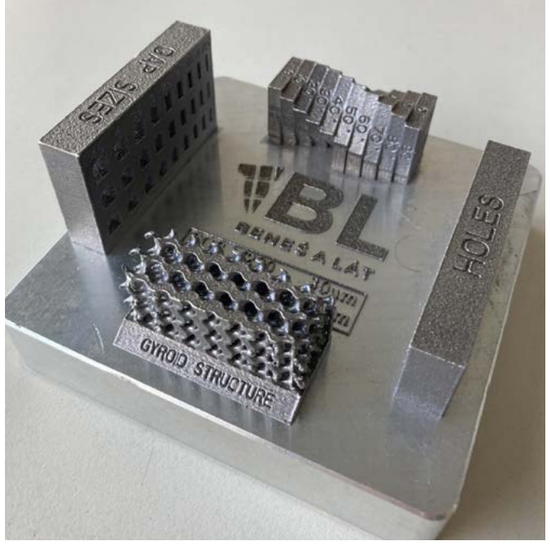
BeamShape

BeamShape has introduced a new type of metal 3D printer for the most challenging applications in the defence, aerospace, medical and energy sectors. Its expertise in the design of the most advanced electron microscopes allows the company to set a new standard for 3D printing with electron beams.

The technology used—electron beam melting (EBM)—offers significant advancements over traditional laser-based additive manufacturing. Instead of melting metal powder in an inert atmosphere, BeamShape uses a high-power electron beam in a vacuum to print 3D structures. This technology enables manufacturing with complex metals like tungsten, titanium and copper. Additionally, the parts produced have minimised internal stress, making them suitable for critical applications without the risk of cracking under heavy strain.

Since the process occurs in a vacuum, it allows the printing of metal alloys without contamination, preserving the composition and ensuring the correct material parameters. The use of a high-power electron beam also enables fast printing, eliminating the need for tedious post-processing, which results in a very short time to part. As a result, BeamShape provides an additive manufacturing solution that is both productive and economical.

www.beamshape.com



BENEŠ a LÁT

A traditional family-owned company producing parts from aluminium, zinc and plastics through a variety of die-casting technologies, moulding, machining and others at its four production sites with about 450 employees.

Thanks to the capabilities of 3D metal printing, the company creates products without limits and with properties that conventional production does not allow. We print from CAD models without the need for drawing documentation. We can produce small design parts, as well as moulds with conformal cooling. After printing, we offer operations such as blasting or heat treatment.

To maintain the highest quality, we print from 20 µm. However, we can also print faster using a wider layer, which allows us to offer more affordable yet high-quality alternatives. Our staff are dedicated to every piece. Thanks to this individual approach, we are able to think through the details.

We have extensive experience in 3D printing large parts such as moulds, mould components and hybrid printing repairs. However, we also print small parts with a designer touch.

www.additive.benesalat.cz / **www.benesalat.cz**

B:TECH

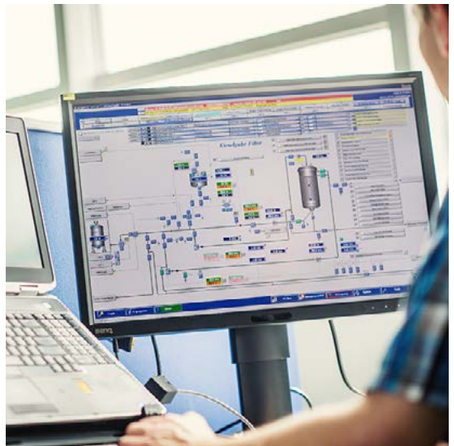
B:TECH is a Czech company founded in 2000, specialising in industrial automation and robotics. It provides turnkey solutions for manufacturing and process technologies worldwide, aiming to enhance efficiency, reduce costs and ensure operational safety.

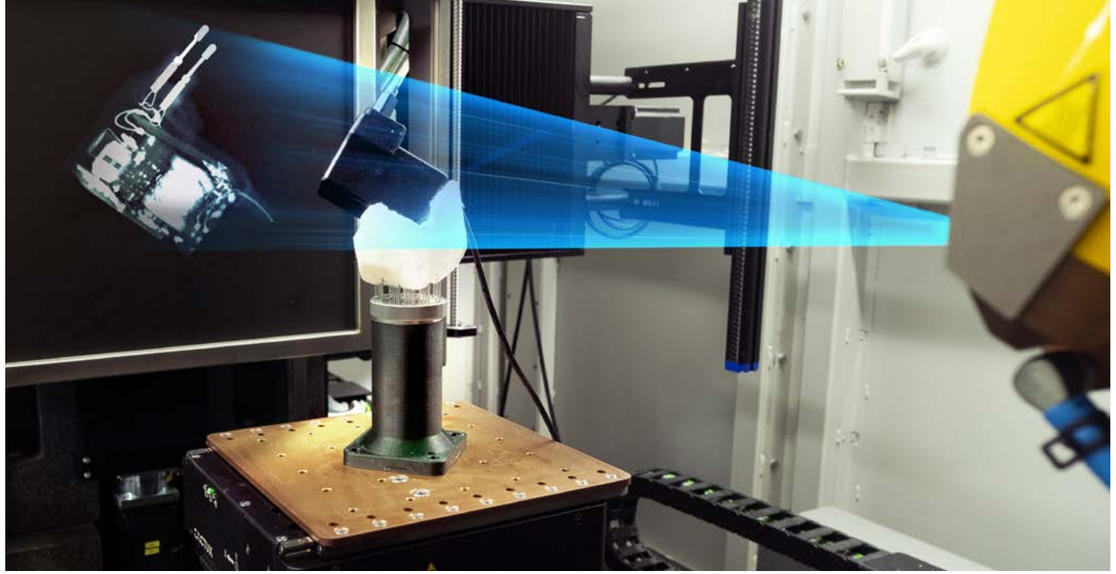
The company focuses on industrial automation and process robotics, including the design, simulation, installation and integration of robotic systems. B:TECH also offers software for process and safety control, operator training, and 24/7 comprehensive service, ensuring reliable operation even after project completion. They specialise in various industries, including automotive, energy, food production and more. A key aspect of their work is implementing projects based on Industry 4.0 principles.

B:TECH operates in over 50 countries, including challenging regions like Asia and South America. Their success stems from technical expertise, flexibility and a commitment to quality. The company supports sustainability and energy-saving solutions while actively engaging in the education of young talents.

With over 20 years of experience and a focus on building long-term partnerships, B:TECH is a reliable partner for both local and international projects.

www.btech.cz/en





CactuX

CactuX is a technological company pioneering innovation in X-ray inspection technologies for industrial quality testing. The company aims to transform X-ray devices into modern, adaptive, high-performance analytical tools by developing and producing SMART solutions that enhance and automate inspection processes in manufacturing environments across major industries.

Our portfolio includes three product lines: wireless translational stages for precise sample positioning, advanced calibration phantoms tailored for high-resolution applications, and climate chambers that simulate diverse environmental conditions. Furthermore, we offer a customised X-ray in-line inspection solution that seamlessly integrates into production lines, enabling real-time quality control. In addition to product development, we collaborate with global leaders in inspection technologies to bring our innovations to international markets. With ISO 9001 certification and a strong commitment to quality, we maintain strategic partnerships and consistently expand our global reach.

www.cactux.cz

Compteq.io

The company develops high-end industrial electronics and has specialised in the development of embedded computer systems for over two decades. It operates globally, incorporating international experience from projects in the EU, USA and Canada into every solution.

It manages the entire development process under one roof – from analysis and design to prototyping and serial production – ensuring consistent quality throughout.

With NDA agreements in place with leading technology manufacturers and strong ties to verified subcontractors worldwide, the company has access to the latest technologies and solutions. It owns state-of-the-art development and testing facilities, including an EMC chamber, with equipment meeting the standards of top research institutions. During collaboration, it provides detailed estimates and online access to timesheets, ensuring clients are always up to date on project progress through regular reporting. The company specialises in hardware development for industries with high certification requirements, such as aerospace, healthcare and industrial automation.

www.compteq.io/en

COMTES FHT

COMTES FHT is a private research organisation that provides a wide range of services in the field of metallic materials. The company's main objective is to provide highly professional services in the research and development of metallic materials. The focus of activities is on the development of new metallic materials and their processing technologies. In the technological field, the company's research focuses mainly on forming and heat treatment processes.

Business activities and services:

- Metallurgical technologies
- Material analysis
- Computer modelling
- Mechanical testing and thermophysical measurements
- Consulting and training
- Preparation and solving of research and investment projects

COMTES FHT cooperates as an R&D provider and testing laboratory with many leading industrial companies, such as Apple, Volkswagen, Doosan, Boeing, Swatch and many others. These and other customers benefit not only from the cutting-edge equipment at the laboratories and professional expertise of the company's employees, but above all from a practically oriented approach to investigating development issues.

www.comtesfht.com

DEL

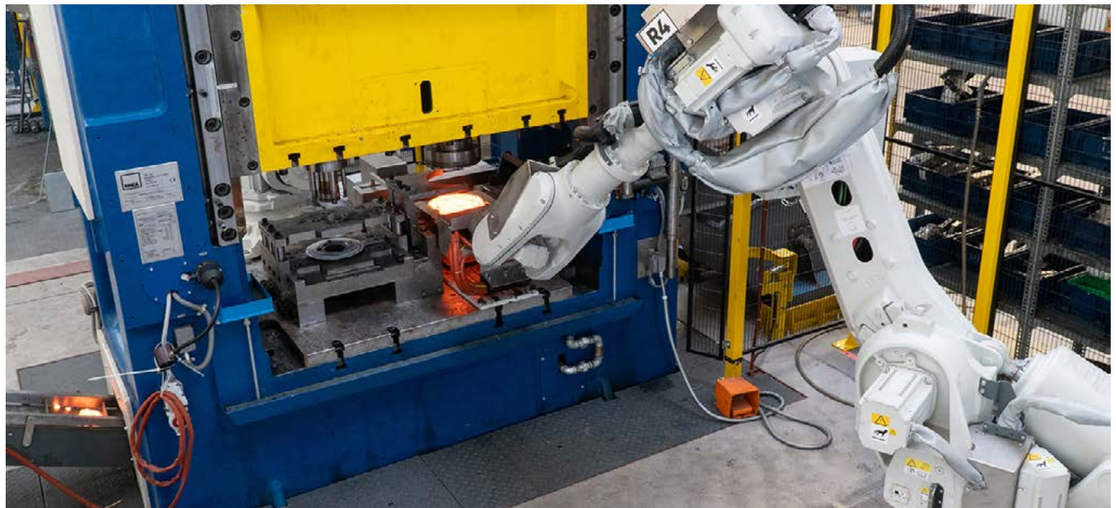
DEL is a leader in automation, robotisation and engineering in Central European markets. Our competitive advantage is complete integration. We handle projects from the initial idea to final assembly, from the initial concept to complex data collection from the running line, all according to Industry 4.0 standards and under one roof.

Our customers are major companies in the automotive, heavy and light industry, energy and engineering sectors from around the world.

DEL also offers the production of switchboards and electrical cabinets. It manufactures its own range of charging stations for electric vehicles. Since 2008, it has also focused on the design and installation of photovoltaic power plants, ranging from small installations on family homes to large industrial solutions with a capacity of hundreds of megawatts.

We are not indifferent to the world around us. We are dedicated to the development and application of technology with a focus on a shared responsible future.

www.del.cz



DELAUDA Robotics

DELAUDA Robotics is a major player in the field of robotics and industrial automation, dedicated to the effective implementation of modern technologies into production processes. The company specialises in the design and implementation of robotic workstations using collaborative and industrial robots, selecting the most suitable solution tailored to the specific needs of its clients. Through a thorough analysis of the production environment, it identifies key areas suitable for automation and develops effective and economically viable solutions.

The implementation process includes not only the mechanical design and programming of robotic systems, but also rigorous testing and seamless integration into production lines with minimal disruption to operations. The company provides comprehensive warranty and post-warranty service ensuring the long-term reliability and efficiency of its robotic applications. The most commonly automated processes include material handling, machine operation, quality control, palletising, welding and laboratory applications.

With a team of experienced engineers specialising in mechanical, electrical and civil engineering, DELAUDA Robotics delivers innovative, customised solutions with a strong focus on safety, flexibility and process optimisation. The company is ISO 9001:2016 certified, confirming its commitment to the highest quality standards. DELAUDA Robotics is the ideal partner for companies looking to modernise production and increase their competitiveness through advanced robotics.

www.robotics.delauda.cz/en

ELTEP: Innovation in Robotics and Industrial Automation

ELTEP is a modern technology company focused on developing and implementing advanced solutions in robotics and industrial automation. The company specialises in designing and manufacturing automated systems, such as robotic workstations, custom machinery and conveyor systems, tailored to meet customer-specific requirements.

The primary goal of ELTEP is to deliver efficient and reliable solutions that optimise production processes, enhance productivity and reduce operational costs. By combining expert knowledge with modern technologies, ELTEP provides innovative equipment that meets the evolving demands of the industry.

Thanks to its focus on customer satisfaction and technical support, the company has built strong long-term relationships with its clients. ELTEP is committed to quality, precision and sustainability, making it a trusted partner for businesses seeking automated solutions customised to their unique needs.

www.eltep.cz/en

ELVAC

ELVAC empowers other businesses to enhance efficiency and streamline operations. It is a trusted partner in industrial automation, power energy and environmental sustainability. Since 1991, it has collaborated with local and international companies across diverse sectors, including light and heavy industry, automotive, transportation and energy distribution.

Headquartered in Ostrava, with branches in Prague and Brno and an international presence in Slovakia, Bulgaria and the USA, ELVAC a.s. is readily available worldwide. The company embraces innovation to drive simpler production, reduce environmental impact and boost client profits.

Businesses can partner with ELVAC a.s. to modernise their operations by integrating cutting-edge Industry 4.0 technologies, such as machine vision, robotics, artificial intelligence and augmented reality. Whether a company requires an industrial computer or a complete assembly line, ELVAC a.s. delivers robust and enduring solutions.

www.elvac.eu/en

Clients can confidently contact the company for expertise in:

- Industrial automation
- Assembly lines & robotics
- Industrial computers & components
- Industrial networks & communications
- Electrical materials & components
- Switchboards & electrical installations
- Power energy monitoring & control
- Ecological solutions for industry
- Software & applications for companies

Filament PM

Filament PM is a leading Czech manufacturer of premium-quality 3D printing filaments. With over a decade of experience, we specialise in producing materials for both hobbyists and demanding industrial applications. Our product portfolio includes PLA, PETG, ABS, NYLON, PC/ABS, CFJet and ULTEM, among others, catering to a wide range of 3D printing needs.

Committed to sustainability, we also develop filaments from recycled plastics, including ocean waste, contributing to eco-friendly 3D printing solutions. Our state-of-the-art production facilities ensure precise manufacturing, consistent quality and exceptional material properties.

At Filament PM, we pride ourselves on innovation, offering expert support to businesses integrating 3D printing into their production processes. Whether you're prototyping or producing functional components, we provide reliable materials tailored to your requirements.

Discover the perfect balance of performance, quality and versatility with Filament PM filaments.

www.filament-pm.com

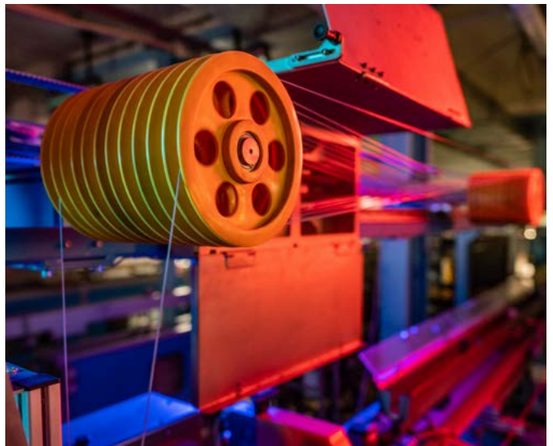
Fillamentum Manufacturing Czech

Fillamentum Manufacturing Czech is a rapidly growing and innovative company, recognised as a global leader in the production of premium-quality 3D printing filaments. With its own dedicated research and development department, Fillamentum proudly collaborates with universities and key players in the 3D printing industry.

Headquartered in Hulín, a town in the Moravian region of the Czech Republic, the company operates with a compact team of around 20 employees, yet its reach is undeniably global. Fillamentum's products are distributed under its brand name to over 62 countries worldwide, a testament to its international success. This global impact was further solidified in 2018 when the company was honoured as the Best Global Exporter at the prestigious DHL UniCredit Export Awards.

Fillamentum offers a diverse portfolio of 3D printing materials designed to meet the needs of hobbyists and professional engineers alike. These materials excel in providing specific mechanical properties essential for demanding industrial applications. The company's unwavering commitment to quality has been a key driver of its success, exemplified by its triumph in the 2021 3D Printing Industry Awards, where it was named Material Company of the Year.

www.fillamentum.com



IMT Technologies & Solutions

IMTTS specialises in the development, production and integration of technological solutions for a wide range of industrial sectors. With years of experience, the company delivers innovative and reliable solutions tailored to the specific needs of its customers.

One of the key areas of the company's expertise is industrial automation, including the design and implementation of automation systems, testing stations and specialised production lines. IMT TS offers collaborative robots and vision systems, which can be integrated into comprehensive automation solutions or provided separately based on customer-specific applications and requirements.

With an individual approach to each project, the company helps its customers automate manufacturing processes efficiently, enhancing their competitiveness in the market. IMT TS is the ideal partner for businesses looking for reliable and flexible industrial automation solutions.

www.imtts.cz/en

Kinalisoft

KINALI, headquartered in Brno, Czechia, delivers cutting-edge industrial software and hardware solutions for a variety of sectors including electronics, automotive and high-tech manufacturing. Our software powers machines used by leading manufacturers like Mycronic, Scienta Omicron and MP Elektronik, playing a key role in producing components for Apple, Siemens, Airbus and NASA. Operating since 2006, KINALI has earned recognition with awards like Top 3 CZ Integrator and Visionary 2022 for its innovative Test-it-off solution.

Kinali specialises in optical quality control, robotic automation and tailor-made industrial software development, enhancing efficiency, precision and traceability. By automating key manufacturing processes, we help businesses reduce manual labour, increase productivity and maintain consistently high-quality standards. These are some of our key solutions:

Test-it-off:
A versatile robotic platform used for advanced applications like PCB testing and warehouse order preparation.

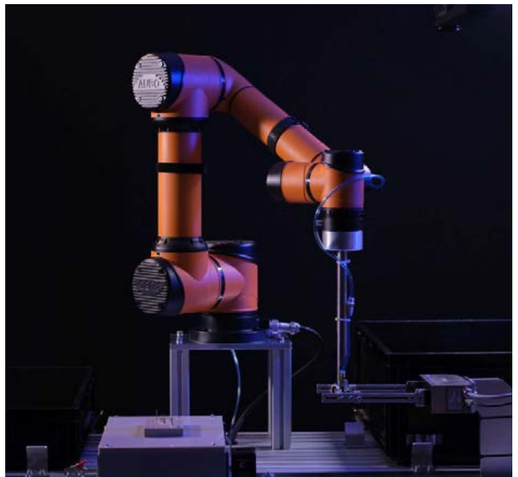
Optical inspection systems:

- Plastic inspection – Detects defects and ensures colour consistency in large, extruded plastic sheets.
- Wood inspection – Measures wooden profiles and detects defects.
- Profile measurement – Ensures precise dimension measurement in various industrial applications.
- Textile inspections – Defect detection in textiles.

Robotic automation solutions:

- Bramboromat – Automated vending machine for potatoes.
- Bin picking (POPELKA) – 3D vision-guided robotic picking.
- CNC tending, packaging automation, screwdriving, welding, CO2 cleaning and more.

www.kinali.cz/en

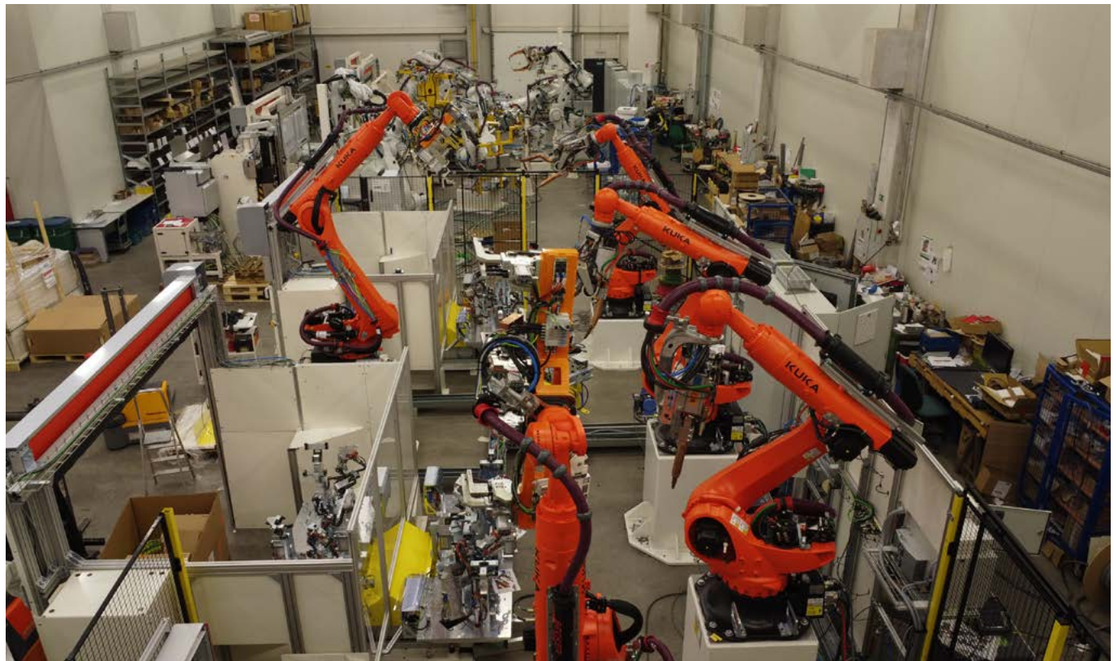


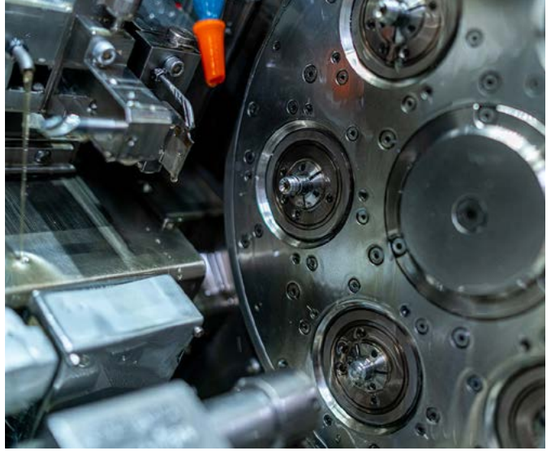
KOPR

KOPR spol. s r.o. is a family owned company that was founded in 1992 as a design studio. Since 1993, it has expanded its activities into the field of toolmaker production. During its existence, thanks to an emphasis on customer satisfaction and maintaining long-term relationships, it has gradually become a major supplier of devices for the automotive industry for domestic and foreign companies.

Over the years, the company's main specialisation has become manufacturing automation, most often focused on the welding process. KOPR devices are used not only in Europe, but also in North America, South America, Asia and even Africa. In 2018, the subsidiary "KOPR Slovakia s.r.o." was established in Slovakia, focusing on automation and production of fixtures for 3D laser cutting machines.

www.kopr.net/en





KROFIAN CZ

Understanding technology is the company's sixth sense. As a result, it makes the most effective use of the other five. It sees new development opportunities, listens to customers, grasps the essence of each assignment, pursue continuous progress, and strives for perfection.

With over 23 years of experience, the company is a reliable partner for innovation and production efficiency. Its machines and lines help optimise manufacturing processes worldwide. It delivers projects in automotive, electrical, medical, and consumer industries. Relying on minimal external cooperation and maximising in-house capabilities, it reacts quickly to project changes and remains largely independent of external suppliers.

The company focuses not only on cutting-edge technology, but also on its culture and social responsibility. It supports employee education and development, cooperates with schools, and offers apprenticeships. A new programme helps graduates enter the job market. The company also engages in charity, supporting local hospitals and nonprofit organisations.

It publishes a regular company magazine featuring updates and industry news, and maintains an active presence on social media, sharing the latest developments.

www.krofian.com

Machine Building

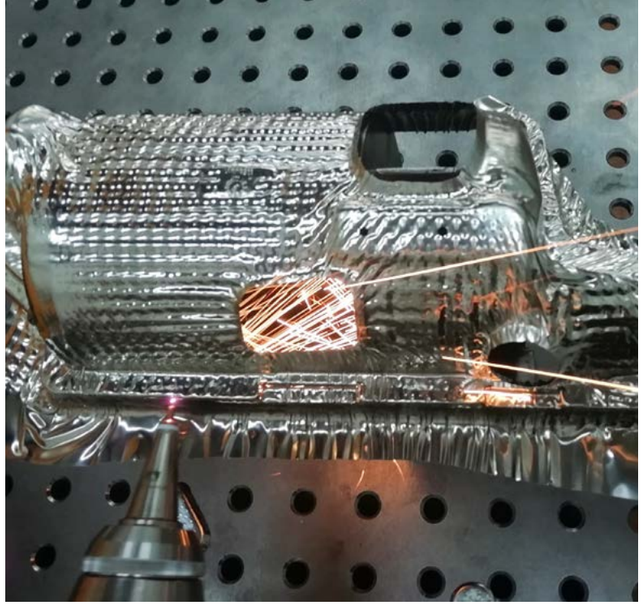
Machine Building s.r.o. is a company specialising in the development and production of industrial automation and robotics. Its mission is to simplify workflows through innovative solutions, such as the unique machine modular system, which eliminates the drawbacks of traditional single-purpose devices.

In cooperation with the Technical University of Liberec, it continues to develop technologies like predictive maintenance, robot learning through the tracking of hand tool movements, and highly precise robotic operations using integrated measurement arms.

The company produces a wide range of conveyors designed for handling both unit and bulk materials, suitable even for the most demanding environments. Its robotic manufacturing systems include industrial robotic applications, collaborative automation and manipulators that significantly enhance production efficiency.

In 2023, it successfully diversified its activities beyond the automotive industry, establishing a presence in sectors such as electronics, chemicals and construction. This strategic shift enabled the company to achieve a profitable year following two challenging periods. Machine Building s.r.o. stands as a synonym for quality and innovation and is proud to deliver effective and robust solutions to various industrial sectors.

www.machinebuilding.cz/en



MATEX PM

MATEX PM is a high-tech company engaged in laser technology for industry. Its work is mainly focused on the processing of metals using high-power lasers and the construction of automated robotic laser centres. The company specialises in the laser welding of components for the transport, rail transport, automotive, power and building industries. It also provides the laser hardening of moulds, tools, gears, turbine blades and various machine parts, as well as laser cladding with wear-resistant or corrosion-resistant coatings.

The company is equipped with several laser centres and high-tech facilities. It employs experts with superior qualifications and conducts chemical and microstructure analysis of materials in its own laboratories. Additionally, MATEX PM offers consultancy and technology development services.

www.matexpm.com/en

MOS technik

MOS technik is a competent partner for modern compressed air technology, efficient industrial automation and single-purpose equipment.

Services:

- Industrial automation: MOS single-purpose machines and industrial robots reduce labour and costs, increasing productivity and reliability by handling tasks that cannot be effectively solved otherwise.
- Fluid technique: The company develops equipment for precise control of gases and liquids.
- Compressed air savings: Compressed air is an expensive industrial medium, and MOS technik identifies system inefficiencies, even in seemingly well-functioning systems, to reduce financial losses.
- Efficient blowing: The company specialises in blowing technology, optimising energy use and ensuring cost-effective operations with expert knowledge.
- Static charge removal: MOS technik addresses the risks posed by static electricity, which can impact production quality and employee health, while also utilising it for various technological needs.
- Humidification and spraying: MOS technik provides solutions for various industrial applications such as humidification, atomising, cleaning, cooling, spraying, coating and more.

The company offers a wide range of tailored solutions to meet diverse industrial needs.

www.mostechnik.cz/en

ONE3D

EXPERTISE • INNOVATION • PRODUCTIVITY • DEVELOPMENT • MANUFACTURING

ONE3D is shaping the future of products. As a leader in advanced manufacturing and technological development, we integrate additive manufacturing, advanced materials and engineering innovations. Our mission is to enable companies to innovate faster and create products that push the boundaries of modern production.

In December 2024, the company achieved AS9100 certification. Nowadays, ONE3D cooperates not only with leading companies but also with research institutions. Experts from the R&D department assist customers with their projects in various industrial applications.

To produce metal parts, the company uses aluminium alloy AlSi10Mg, stainless steel 316L, tool steel MS1 as well as advanced materials such as titanium alloy Ti64 and Inconel 718.

In May 2024, the company became Lockheed Martin's industrial partner in a development project within the scope of purchasing fifth-generation F-35 fighter jets for the Czech Army.

www.one3d.cz/en

OSTROJ

For nearly 80 years, OSTROJ has been developing and manufacturing machinery for both surface and underground operations, including complex conveyor systems. Leveraging on this expertise and utilising modern technologies – such as robotisation, virtual reality or 3D printing – OSTROJ also designs, installs and services automated production lines and equipment for industrial applications across industrial sectors, ranging from logistics and automotive to food processing or pharmaceuticals, prioritising efficiency, modularity and cost reduction.

The company is also a leading manufacturer of heavy-duty machinery for underground road, railway and metro tunnel construction, while maintaining its expertise in longwall underground mining and production of hydraulic cylinders and steel die forgings.

With over 42,000 square meters of production space and almost 800 employees, OSTROJ emphasises a full-service approach, driving the development and design of innovative machinery and technologies. The company oversees the entire project and product lifecycle, guaranteeing consistent quality and adherence to required specifications from initial design all the way to final installation, commissioning and warranty and post-warranty service and maintenance.

www.ostroj.cz/en

PREFA Technology

PREFA Technology is a Czech company engaged in the design and production of technologies for the construction industry since 1969, from moulds for concrete and related technologies to the handling of final reinforced-concrete products.

Its products emphasise high quality and added value with customised solutions, which sets it apart from the competition. It designs its equipment to meet the latest trends and increase the flexibility of its customers' production.

It helps customers automate precast production facilities, increase production capacity and save energy and personnel costs.

The company is located in the capital city of Prague, where its management, engineering and sales teams reside. The production facility is located in Kamenný Přívoz, about 15 km south of Prague.

www.prefa-technology.cz/en

Prusa Research

Founded in 2012, Prusa Research ranks among the top 3D printing companies in the world. Prusa 3D printers are renowned for their reliability and outstanding build quality, while Prusament filaments stand out for their consistency and rigorous quality control.

With over 600,000 Prusa machines in more than 165 countries, trusted by industry leaders like Tesla, SpaceX, Lockheed Martin and Volkswagen, the company maintains its core values: "Loved by makers, valued by professionals." Combining award-winning design with accessible customer support, Prusa Research is recognised worldwide as a key innovator in 3D printing.

Driven by a strong commitment to open-source collaboration, the company continuously refines its hardware and software solutions to meet evolving industry needs. Prusa Research serves various industries, including automotive, aerospace, engineering and healthcare. It offers tools for reliable and proven rapid prototyping, production and innovation solutions. Prusa ensures consistent quality control and product integrity by manufacturing most components and filaments in-house. The company's software portfolio - featuring PrusaSlicer for advanced print preparation and Prusa Connect for remote printer management - integrates seamlessly into existing workflows.

www.prusa3d.com

PSP Pohony

PSP Pohony – Your partner for innovative drive technology solutions

PSP Pohony is a leading manufacturer of industrial gearboxes, couplings, brakes and high-precision gears. We offer innovative and reliable solutions for a wide range of industrial applications. With our extensive experience and technical expertise, we provide our customers with not only standard catalogue products but also custom solutions tailored precisely to their needs. Quality, reliability and customer support are the core values that form the foundation of our successful partnerships worldwide.

Our vision: Our vision is to become the preferred supplier of industrial gearboxes, couplings and brakes across all industrial sectors. With a passion for innovation and uncompromising quality, we strive to deliver products that not only meet but exceed our customers' expectations. We focus on technological advancement and sustainability to provide our partners with solutions that support their growth and success. Together, we build long-term, mutually beneficial partnerships, where every step we take is a step towards a better future.

www.pohony.cz/en/

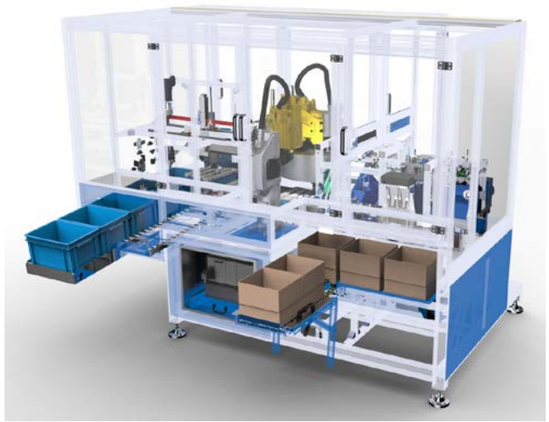
Resim Turnov

Resim Turnov is an experienced industrial automation solutions provider specialising in robotic and automated systems for manufacturing processes. With extensive experience in automation of machining, assembly, handling, ultrasonic welding, plastic cutting, deburring, packaging and measurement, we help businesses increase efficiency, accuracy and safety. Our solutions include robotic screwdriving, palletising, ultrasonic welding and high-precision material handling, serving industries such as automotive, electrical and mechanical engineering, plastics and more.

Our advanced robotic applications integrate seamlessly into customer production lines and ensure high-speed, repeatable and quality-controlled operations. Whether optimising assembly with robots, developing new technological operations and procedures or implementing intelligent handling systems, Resim Turnov delivers tailor-made solutions that improve productivity, enhance safety and ergonomics and also replace physically demanding or monotonous tasks.

Resim's core mission is innovation and excellence in industrial automation, helping customers achieve higher performance, quality, and efficiency in modern manufacturing.

www.resim.cz/language/en



SEMA DesignING

SEMA is young and dynamic machine company focused on delivering innovative and creative solutions. We optimise production processes by developing and manufacturing custom-made machines and providing machine design services. Our services cover the entire range of production needs: from initial analysis of current production status to identifying weaknesses in the production process, through the designing of unique, customised solutions and their manufacturing, assembly and commissioning, to final handover to customer and servicing of the machines.

Our services help to reduce production costs, increase productivity, improve workplace ergonomics in production or bring additional capacity or know-how to machine development. We focus on a modern approach: AI, AR, VR, using cloud technologies and current trends to increase the effectiveness of our processes and customer interaction. SEMA: Automate – Accelerate – Dominate.

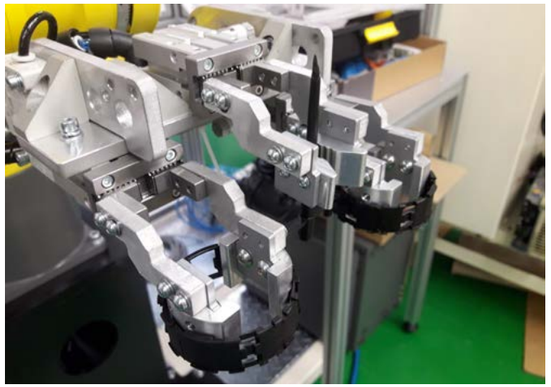
www.sema.cz/en/

Stoba Precision Technology

From an idea to serial production – the company produces high-precision, individualised components tailored to customer requirements. As a partner to the metalworking industry, it provides sophisticated technical solutions for complex problems. It becomes involved especially when conventional approaches do not lead to the desired result. Interdisciplinarity is its greatest strength. With combined expertise in the fields of precision engineering and special machine construction, the company is able to master any technical production challenge.

It is a pioneer, driver and expert in setting new standards. Its innovative solutions reliably lead projects to success.

www.stoba.one/en/competence/#wedevelopthefuture



STRKAN

STRKAN s.r.o. was founded in 2012. The company's main business area is the development, design and production of single-purpose machines, fixtures and handling equipment for use primarily in the production and servicing of rail transport equipment. The company also operates as a manufacturer of welded parts and components for rail vehicles. Another area in which the company is active is industrial automation and robotisation. It designs and manufactures lines, production machines and robotic workplaces for customers.

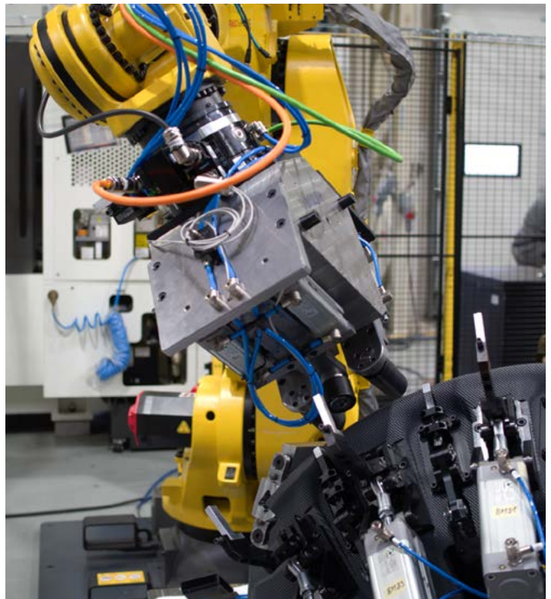
www.strkan.cz

TGS TECHNOLOGY

From an idea to a product. This is what makes TGS tools - machines - technological services unique.

We get you from prototype to product. Innovative products need innovative ideas to be realized and that's what we do, what we like. We work across different industries like drones, aircraft, defence transportation, healthcare etc., including everything the hardware start-up scene needs in order to innovate and bring solutions or prototypes of the physical product or part to the market in a realistic timeframe. Our clear understanding of production processes enables us to implement new technologies and materials such as composites, plastics and 3D printing into the production reality. Once we understand the unique requirements for the selected part or product, we design the prototyping or production technology solution, standing by you from the initial joint consultations through to delivering the final comprehensive solution. Some products need to be localised for better success before they enter certain business areas.

www.tgs.cz



TNS SERVIS

Within its ZLÍN ROBOTICS® division, TNS SERVIS specialises in the design, development and implementation of automated lines and robotic workplaces fully adapted to customer requirements. These solutions efficiently cover a wide range of production operations, including ultrasonic welding, gluing with 2K adhesives, grinding and micro-resistance welding.

For ultrasonic welding, the company offers technologies that ensure high-quality, strong joints in plastic materials with minimal thermal influence. In the field of 2K gluing, TNS SERVIS focuses on the precise application of two-component adhesives to create strong and durable joints. Its robotic grinding stations achieve high precision, essential for producing components with fine tolerances and complex shapes. For micro-resistance welding, the company offers welding carousels as well as high-precision robotic workstations, enabling efficient joining of thin materials or small parts—ideal for industries such as electronics, automotive and battery production. TNS SERVIS also provides a collaborative robotics kit for process testing and validation, benefiting both students and companies focused on robotisation.

The company offers more than just the development and delivery of technological lines. It also takes care of complete contract manufacturing services and provides full support to its clients—from product development to serial production and logistics services for final customers.

www.tnsservis.com

ZDENAL Technik

ZDENAL Technik is a Czech engineering company specialising in system integration, development and construction of production lines and various custom machinery such as robotic workplaces, assembly workstations, separators, conveyors and other mechanical equipment or components tailored to customer requirements.

The company covers the entire project process, from creating a 3D design, through assembly and automation, to servicing and supplying spare parts. It develops new devices and also innovates and modernises existing solutions. With over 25 years of experience, it collaborates with experts from the field of engineering as well as other industries. The company prides itself on quality, reliability, efficiency and excellent communication. It is capable of developing both standardised and custom solutions, from small machines to large, complex production systems.

www.zdenaltechnik.cz/en

Research & innovation in Czech Advanced Manufacturing

Czech Technical University in Prague (CTU)

Faculty of Electrical Engineering

The Faculty of Electrical Engineering of the Czech Technical University in Prague (FEL CTU) is a leading Czech institution in electrical engineering and computer science. Its research spans a wide range of topics, including advanced manufacturing. For example, the Department of Electromagnetic Fields focuses on microwave measurements and simulations using advanced 3D electromagnetic tools. The faculty also offers courses related to manufacturing technologies, such as optical fibre and cable production.

AI-Based Robotic System for Beehive Monitoring

Researchers from FEL CTU's Centre for Artificial Intelligence, in collaboration with partners from Austria, the UK and Türkiye, developed an AI-powered autonomous robotic system to monitor queen bee behaviour and hive dynamics. Using non-intrusive infrared cameras, the system collects around 1,400 GB of data daily—over 100 million images per month. It tracks egg-laying and population levels, enabling continuous, detailed observation of colony health.

This breakthrough provides valuable insights into bee behaviour with potential applications in agriculture and ecology. The research was published in the prestigious Science Robotics journal, highlighting its global significance.

www.fel.cvut.cz/en

Faculty of Mechanical Engineering

The Faculty of Mechanical Engineering of the CTU (FME CTU) is a key player in the field of mechanical engineering with an emphasis on advanced manufacturing technologies. The faculty focuses on additive manufacturing, specifically Wire Arc Additive Manufacturing (WAAM) technology, which enables the production of metal parts by adding material through arc welding. Another example is a project to rapidly develop microfluidic devices using additive manufacturing to create a model of a biological cell. FME CTU is also building an ecosystem for aerospace technology and developing hybrid manufacturing technologies. These activities confirm the significant contribution of the faculty to advanced manufacturing in the Czech Republic.

www.fs.cvut.cz

Did you know?

The Czech Institute of Informatics, Robotics and Cybernetics of the CTU (CIIRC) has developed a robot that learns by watching and listening to humans, while understanding Czech commands. In April 2019, a follow-up three-year project was launched to create a collaborative robotic workplace with an emphasis on machine learning, in collaboration with Factorio Solution.

Czech Institute of Informatics, Robotics and Cybernetics (CIIRC)

The Czech Institute of Informatics, Robotics and Cybernetics (CIIRC) at the Czech Technical University in Prague is a leading research institution focused on informatics, robotics and cybernetics. Its mission is to conduct cutting-edge research and promote innovation in these areas. CIIRC plays a key role in advanced industrial manufacturing, particularly through its Industry 4.0 Testbed, the largest of its kind in Central and Eastern Europe. This testbed

provides an experimental environment for the development and testing of innovative solutions in the field of automation and digitalisation of production. CIIRC is also a key partner in the European centre of excellence RICAIP (Research and Innovation Centre on Advanced Industrial Production), which links testbeds in Prague, Brno and Saarbrücken, Germany. RICAIP focuses on research into modular distributed manufacturing and manufacturing as a service, which enables flexible and efficient production processes. Through these initiatives, CIIRC is making a significant contribution to the development of advanced industrial manufacturing in the Czech Republic and Europe.

The robot's uniqueness lies in its ability to understand Czech, which facilitates its integration into Czech manufacturing companies where not all employees speak English. In addition to speech recognition, the robot also focuses on planning the sequence of tasks, which is crucial, for example, when gluing or welding, where it is important to follow the correct procedure. The goal is to allow humans to give tasks to robots through spoken commands and gestures, with robots being able to collaborate and perform tasks on a schedule.

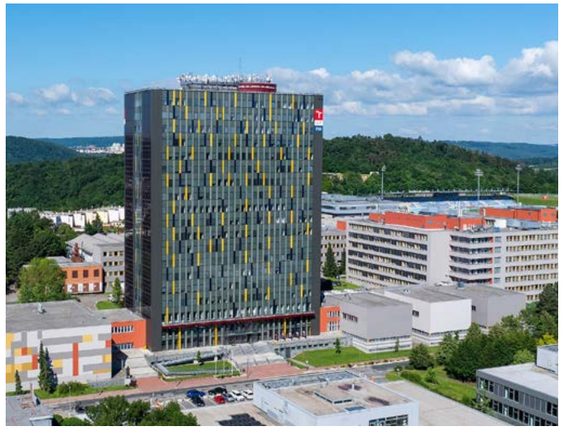
The potential application of this robot is mainly in the automotive industry for the assembly of parts. In the future, it could also find use in social services, for example in caring for the elderly or people with limited mobility.

www.ciirc.cvut.cz/cs

Brno University of Technology

Faculty of Mechanical Engineering

The Faculty of Mechanical Engineering of the Brno University of Technology (FME BUT) is the largest engineering faculty in the Czech Republic, known for its high-quality education and research in mechanical engineering. It significantly contributes to advanced manufacturing through key initiatives.



The Advanced Aerostructures Research Centre at the Institute of Aerospace Engineering focuses on developing "smart" structures with Structural Health Monitoring systems, enhancing aircraft efficiency and safety.

Another major initiative is the ADAAC project (Additive Design for Aerospace Applications Capabilities), which advances additive manufacturing using metal powders for aerospace. It identifies suitable components, develops design methods, and validates them through prototyping and testing.

The historic Institute of Machine and Industrial Design, founded in 1901, promotes innovation in advanced mechanical engineering and design, bridging academia and industry. FME BUT also develops new production technologies, such as casting vermicular graphite cast iron—used in the automotive sector—using a cupola furnace. These activities underline FME BUT's strong role in advanced manufacturing and its leadership in Czech mechanical engineering.

www.fme.vutbr.cz

Charles University

Faculty of Mathematics and Physics

The Faculty of Mathematics and Physics of Charles University (FMP CU) is an important institution in the field of mathematics, physics and computer science in the Czech Republic. In the context of advanced manufacturing, the faculty contributes mainly through research in the field of nanomaterials and hydrogen technologies.

The Nanomaterials Group is focused on developing advanced and cost-effective electrocatalysts for hydrogen technology, which is key to future energy solutions. They also study model catalysts used in industrial catalysis, gas sensors and hydrogen technologies.

The Department of Software Engineering is engaged in research in the area of software and database systems with applications in various fields, including bioinformatics and cloud computing. These activities underline the significant contribution of the FMP CU to advanced manufacturing technologies and innovation in the Czech Republic.

www.mff.cuni.cz

University of Pardubice

Faculty of Electrical Engineering and Informatics

The Faculty of Electrical Engineering and Informatics of the University of Pardubice (FEEI UPCE) is a dynamically developing institution that has been providing education in the fields of information technology, electronic systems and automation since its establishment in 2008.

The faculty's study programmes prepare students for careers as programmers, analysts, network and database administrators, specialists in the development of information and communication systems, control technology applications or experts in radar and radio communication technology. FEEI UPCE emphasises the connection between theory and practice through cooperation with industrial enterprises and research institutions, which allows students to complete internships leading to the assignment of bachelor's or master's theses and often to job offers. In 2018, the faculty opened modern laboratories equipped for applications related to automation, informatics and electrical engineering, reflecting the trends of the fourth industrial revolution. These labs give students hands-on experience with near-future technologies and increase their competitiveness in the job market.

www.upce.cz/en

Technical University of Liberec

Institute for Nanomaterials, Advanced Technology and Innovation

The Institute for Nanomaterials, Advanced Technology and Innovation (CXI TUL) is an internationally recognised centre that focuses on the practical application of new, progressive technologies. CXI TUL brings together science and industry to deliver innovations that have a real impact - from nanotechnology and new materials to smart machines controlled by artificial intelligence. Our specialisation also extends to the field of additive technologies, where, as the holders of the Centre of Competence for Industrial 3D Printing (P3D), we are pushing the boundaries of modern manufacturing and helping companies accelerate development, reduce costs and increase their competitiveness. As part of the Technical University of Liberec, we offer our partners and students not only cutting-edge research but also access to unique know-how and state-of-the-art technological facilities. Our vision is to be a key partner for companies that want to set the direction and become leaders in the world of innovation.

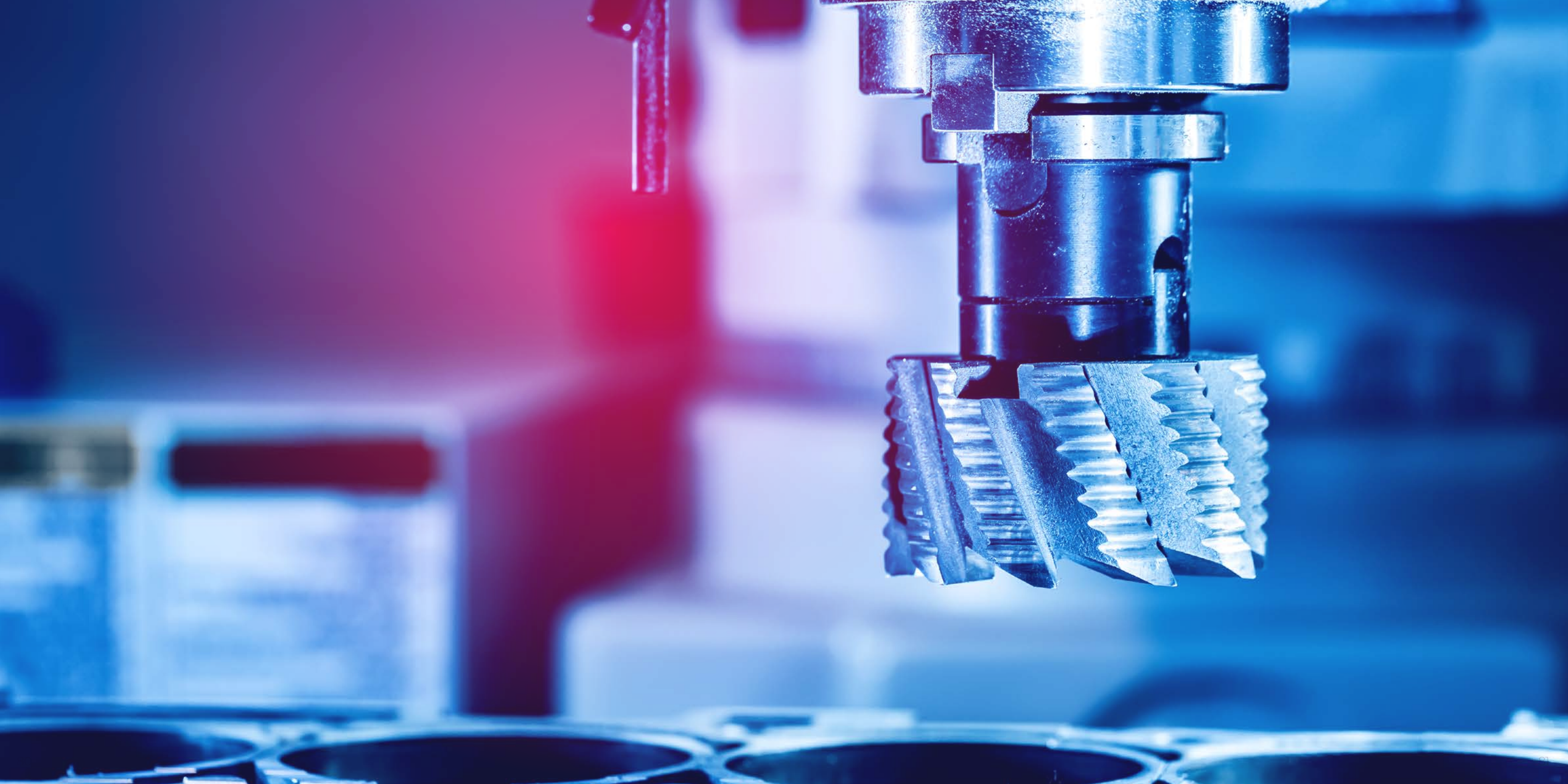
www.cxi.tul.cz

Company Directory by Technology & Materials Focus

Company	Metals	Plastics	Special materials	Automated handling technology	Conveyors and conveyor systems	Additive manufacturing technology	Lasers	Measurements and inspections	Smart solutions and software/ hardware	Packing machines	Single-purpose machines
Advanced Metal Powders	●		●			●					
Advantage-fl.cz	●	●	●			●	●				
ATC Drašar		●		●	●						●
BeamShape	●		●			●					
Beneš a Lát	●					●					
B:TECH											●
CactuX								●	●		
Compteq.io									●		
COMTES FHT	●							●			
DEL				●	●		●				●
DELAUDA Robotics				●							●
ELTEP				●	●						●
ELVAC				●				●	●		●
Filament PM		●				●					
Fillamentum Manufacturing Czech		●				●					
IMT Technologies and solutions								●	●		●
Kinalisoft	●	●	●	●				●	●	●	●

Company Directory by Technology & Materials Focus

Company	Metals	Plastics	Special materials	Automated handling technology	Conveyors and conveyor systems	Additive manufacturing technology	Lasers	Measurements and inspections	Smart solutions and software/ hardware	Packing machines	Single-purpose machines
KOPR	●	●				●	●				●
KROFIAN CZ											●
Machine Building				●	●			●	●		●
MATEX PM	●					●	●				●
MOS Technik											●
ONE3D	●	●	●			●					
OSTROJ		●			●	●					
PREFA Technology			●	●							
Prusa Research		●				●					
PSP Pohony	●			●	●			●		●	
Resim Turnov	●	●		●	●			●	●	●	●
SEMA DesignING		●				●			●		●
Stoba Precision Technology	●	●						●			●
STRKAN				●	●						●
TGS tools - machines - technological services											●
TNS SERVIS				●	●			●	●	●	●
ZDENAL Technik					●						●



CzechTrade
Czech Trade Promotion Agency

Connecting Czech and
Worldwide Businesses