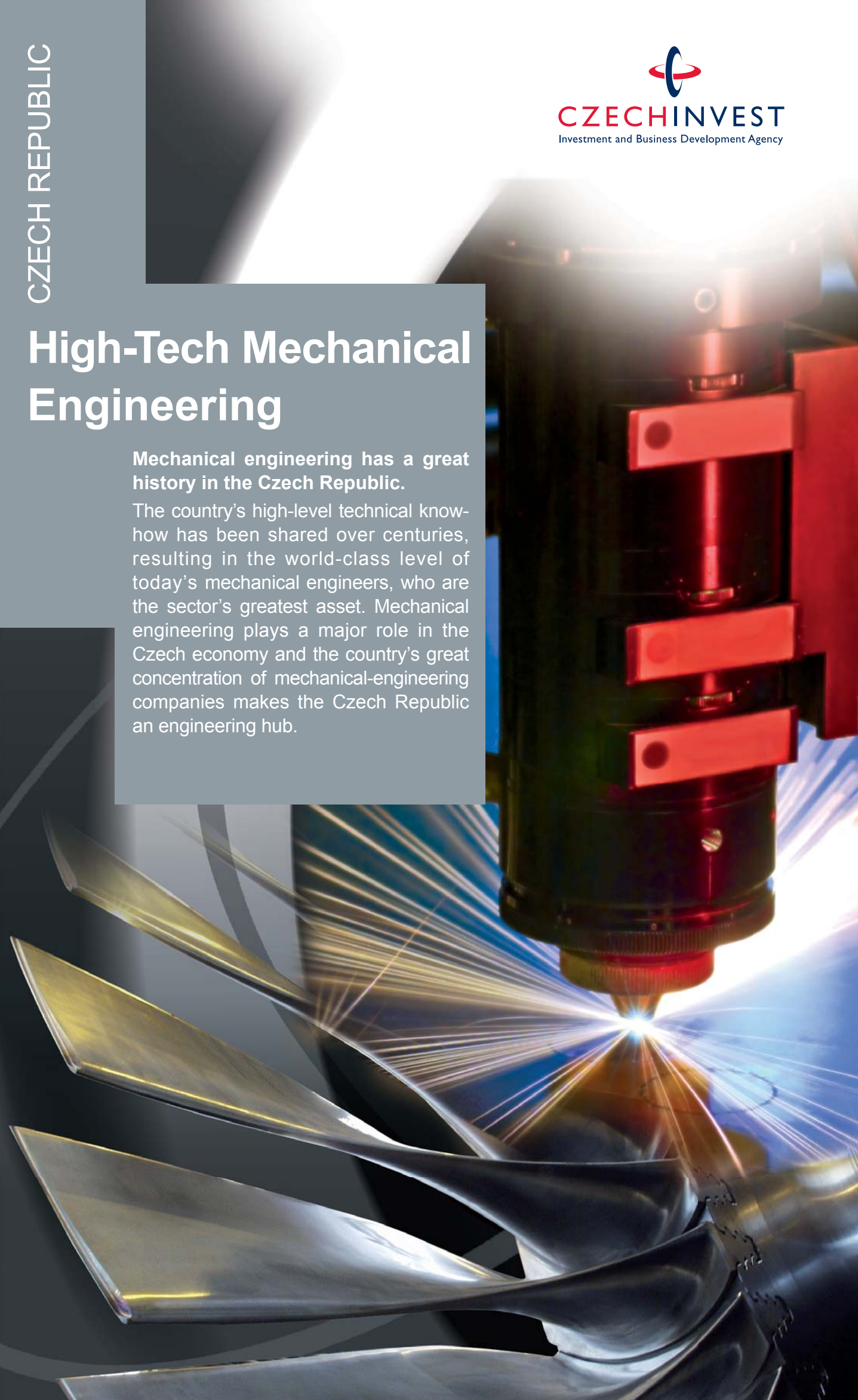


High-Tech Mechanical Engineering

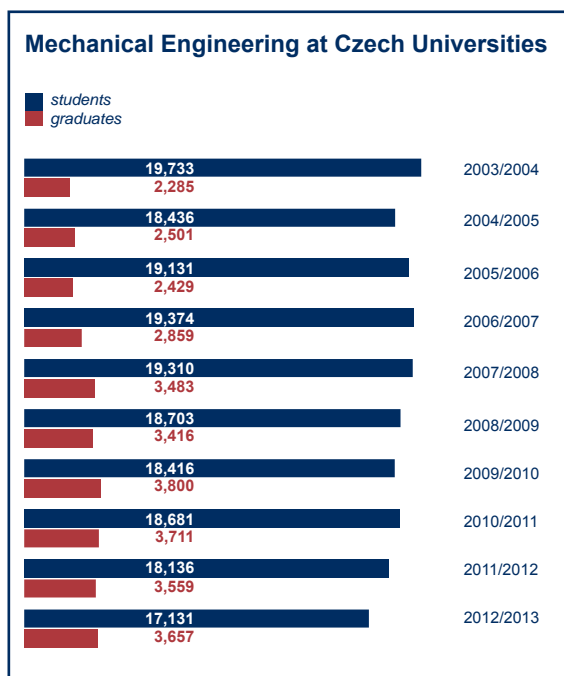
Mechanical engineering has a great history in the Czech Republic.

The country's high-level technical know-how has been shared over centuries, resulting in the world-class level of today's mechanical engineers, who are the sector's greatest asset. Mechanical engineering plays a major role in the Czech economy and the country's great concentration of mechanical-engineering companies makes the Czech Republic an engineering hub.



REASONS TO INVEST IN THE CZECH REPUBLIC

- Strategic position in Central Europe, direct transport access to the EU market of nearly 500 million consumers
- 300 years of academic engineering education in the Czech Republic – continuity of sharing premium-level technological know-how
- Highly educated and skilled workforce, good access to technically educated university graduates – over 20,000 technical engineers graduating every year
- High concentration of mechanical engineering companies allowing easy identification of business partners and suppliers
- Positive approach of the Czech Government, investment support covering up to 60% of eligible costs through a transparent system of investment incentives
- Highly developed transport infrastructure
- The most advanced telecommunications infrastructure within the CEE region, creating conditions for establishing a regional software hub, thus supporting future material research and precision mechanical engineering
- First-class support from CzechInvest



Source: Ministry of Education, Youth and Sport, 2013

BASIC FACTS

With a production base of more than 1,100 companies, the sector supplies complete equipment and machinery (including turbines, transportation and air-conditioning equipment; agricultural, food-processing and construction machinery; and machine tools) while also engineering household goods.

The Czech Republic is the only CEE member country of prestigious CECIMO (European Committee for Cooperation in the Machine-Tool Industry).

IF R&D IS WHAT YOU NEED

The Czech Republic is home to a number of mechanical-engineering R&D centres. Corporate R&D centres involved in power engineering include, for example, (**Škoda Research**) focused on research and testing of the service reliability of various power engineering devices and **ČKD Blansko Holding** with its in-house Water Machinery Research Institute. Other power engineering R&D centres are of an academic nature and are part of the Academy of the Sciences or technical universities. The most prominent of these are the **Nuclear Research Institute** in Řež, a suburb of Prague, the **Centre for Advanced Technologies and Power Engineering Systems** at the Czech Technical University (ČVUT) in Prague, the **New Technologies Research Centre** in Plzeň, the **Energy Institute** at the Technical University in Brno and the **Energy Research Centre** in Ostrava.

The Czech Republic also directly participates in the international **CERN** project, which it joined in 1993. The Czech transport engineering sector bases the success and reputation of its products on the work of world-class research centres and testing facilities. These R&D centres – VUZ – **Railway Research Institute**, VÚKV – **Research Institute of Rolling Stock**, **Škoda Research**, ZKV – **Testing Laboratory of Rolling Stock** and a number of academic institutions, such as the Research Centre of Rail Vehicles at universities in Plzeň and Pardubice – are used for the purpose of designing, developing and testing new equipment aimed at improving the speed, safety, comfort and efficiency of rail transport. **NETME Centre** Brno – New Technologies for Mechanical Engineering – is a regional research and development centre based on high quality research and development conducted at the Faculty of Mechanical Engineering at Brno University of Technology. **VÚTS – Center of Engineering R&D Liberec**.



1707

Establishment of the Engineering Academy in Prague



1825

First European public railway established on the České Budějovice-Linz route



1911

Steam power turbine – the first of its own design produced by the Škoda works



1912

Viktor Kaplan invents new type of water turbine at Brno Technical University

PRODUCTION FACILITIES

- A number of world leaders such as Siemens, Honeywell, Bombardier Transportation, Robert Bosch, Sandvik, Doosan, Komatsu, Rieter Group, Otis have already established their operations in the Czech Republic.
- Well-known domestic leaders include Škoda Transportation, Vítkovice Holding, Bonatrans Group, ČKD Blansko Holding, TOS Varnsdorf, Tajmac-ZPS, Třinecké železářny-Moravia Steel, První brněnská strojírna, etc.

INVESTMENT CASE STUDY

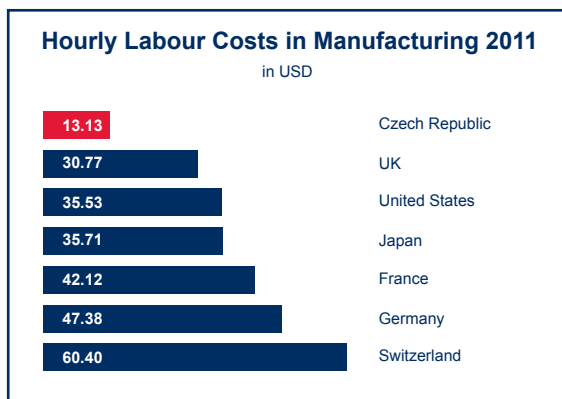
Edwards, UK

In 2011 Edwards, a world leader in vacuum technology, has officially opened its first volume vacuum pump manufacturing facility in mainland Europe. The company has invested approximately £47 million in the state-of-the-art manufacturing site at Lutín, Czech Republic.

The 20,000 m² site is the new global centre for manufacturing the company's range of vacuum pumps that are used across a variety of applications, from steel manufacturing to centrifuges in a laboratory. Through investing in the site, Edwards has created 600 jobs in the region and there are many opportunities for local graduates to become part of the global vacuum technology company.

"We are delighted to open our new world class facility in Lutín, which will help sustain our leadership of the global vacuum market."

Matthew Taylor, Chief Executive Officer at Edwards



Source: U.S. Bureau of Labour Statistics, 2013

R&D CASE STUDY

Ingersoll-Rand, USA

Ingersoll-Rand (IR) is a significant mechanical engineering firm and global provider of the most various innovations and solutions in its field. In the Czech Republic there are 2 plants and R&D centre since 2011. The Kolín plant (mobile refrigeration, air-conditioning for buses and rail vehicles), 550 employees. The Uničov plant (stationary screw compressors, piston compressors for mobile refrigeration), 200 employees. The Hostivice R&D centre (R&D centre, testing facility, IR university), 90 employees.

Key milestones of IR in the Czech Republic

- 1992 Thermo King takes over the Research Institute of Refrigeration Technology in Prague and builds a production plant in Kolín
- 1997 Ingersoll Rand Company acquires Thermo King and starts its activities in the Czech Republic
- 2001 Acquisition of the Superstav factory in Dobříš – production of loaders and excavators
- 2002 IR builds compressor factory in Uničov (supported by investment incentives from CzechInvest)
- 2007 Construction of modern R&D and administration complex including training centre for employees from the whole world (supported by Technology centres funding programme from CzechInvest)
- 2012 Significant extension of R&D facility in Hostivice

CZECHINVEST'S SERVICES

- Full information assistance
- Tailor-made visits
- Maximisation of networking capacity
- Handling of investment incentives
- Access to EU structural funds
- Business properties identification
- Business infrastructure development
- Supplier/JV/aquisition partner identification

EDUCATION SYSTEM

The Czech education system meets the needs of a competitive economy. According to the latest OECD study, the Czech Republic has one of the strongest positions regarding the percentage of students graduating in engineering and manufacturing fields. In the academic year 2012/2013, there were approximately 4,000 graduates in mechanical engineering at Czech universities.



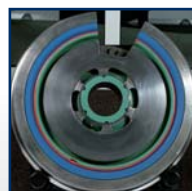
1952

VÚTS Liberec, Vladimír Svátý invents the jet weaving principle



1966

TOS Varnsdorf produces a world-class numeric-controlled horizontal drilling machine



2006

World speed record on Bonatrans wheels



2013

New Czech locomotive from Škoda Transportation is one of the most efficient locomotives in the world in the four-axle class

HIGH-TECH MECHANICAL ENGINEERING INVESTMENTS

- Power engineering
- Transport engineering
- Machine-Tool
- Metallurgy
- Metal construction and components
- Others



CENTRUM ROZVOJE STROJÍRENSKÉHO VÝZKUMU **CRSV**

Centre of Engineering Research & Development Liberec

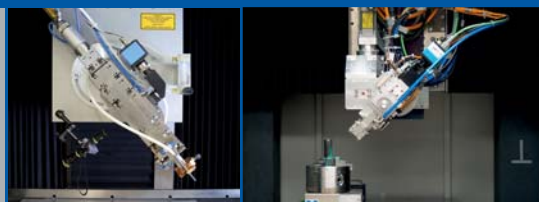
is aimed at implementing cutting-edge R & D and extension of new advanced technologies in the field of general and precision engineering.



LASEROVÉ APLIKAČNÍ CENTRUM **LAC**

Application Centre of Laser Machine Tools

is focused on the development of application possibilities of modern laser technologies in mechanical engineering, especially in machining and the heat treatment of metals, plastics, composites and other materials.



CZECHINVEST'S HEADQUARTERS

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