

# Czech Defence Industry & Security Review®

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Industry Association of the Czech Republic



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# EDITORIAL

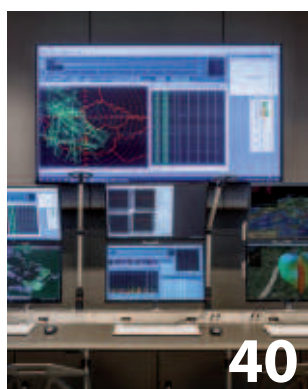
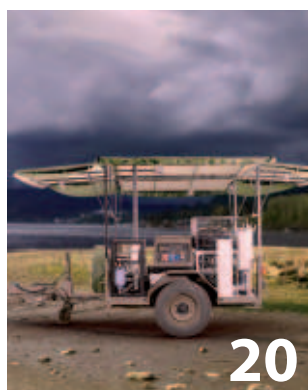
Dear readers,

This year's first issue of CDIS Review will present to you the best of the Czech defence and security industry, which promotes its products and services through our magazine at numerous events, including IDEX 2019 – Abu Dhabi, UAE, ENFORCE TAC and IWA 2019 - Nürnberg, Germany, LAAD 2019 – Rio de Janeiro, Brazil, IDEF 2019 – Istanbul, Turkey, IDET 2019 – Brno, Czech Republic, ISDEF 2019 – Tel-Aviv, Israel and Paris Air Show 2019 – Paris, France. You will find many leading Czech companies dealing in soldier's gear, security, training, unmanned aerial vehicles and technologies, defence industry, radio transceivers, optics, ammunition and development.

This English version focuses mainly on support of Czech companies at international fairs, and I firmly believe that the companies presented herein will convince you of their top-ranking status.

This issue you can read online at [www.msline.cz](http://www.msline.cz)

Šárka Cook  
Editor-in-chief



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# Opening speech by Mr. Lubomír Metnar Minister of Defence of the Czech Republic



Dear ladies and gentlemen,

2018 marked the anniversary celebrations of a hundred years of existence of an independent state of Czechs and Slovaks, and when we look back we can well demonstrate the shift that our now independent Czech Republic has made in many areas. The Czech defence industry, whose tradition dates back to the period of the beginning of the Czechoslovak statehood, has gained its rightful place on the world markets since then and is currently building on its excellent reputation in establishing new business partnerships.

Ministry of Defence of the Czech Republic is interested in maintaining and disseminating the positive reputation of the Czech defence industry and thus contributing to increasing the prestige and reputation of the Czech Republic. In 2018, we have made dozens of foreign trips to support the domestic defence industry,

which, combined with the unique know-how and the ability of companies to compete in sharp foreign competition, resulted in the conclusion of many commercial contracts. In 2019, I will lead a Czech MoD delegation during its visits to the IDEX international exhibition in United Arab Emirates as well as to the Aero India Airshow.

Our goal is to continue with our support in the years to come, according to the framework set out in the Strategy for Arming and Supporting the Development of the Defence Industry. We are also able to coordinate the needs and plans of the Czech Armed Forces with the capabilities of the domestic defence industry more closely, whether in research and development or in the field of production itself. Aligning the needs of the army with the trends in the domestic defence technology development is crucial from several points of view, one of which is, for example, increasing the share of realized acquisitions from domestic sources.

In the long run, we also support the involvement of Czech defence industry companies in European Union defence co-operative initiatives such as Permanent Structured Cooperation and European Defence Fund, which enable the development of Member States' capabilities through the implementation of multinational joint projects. The Czech Republic participates in NATO cooperative projects and is active in several NATO agencies. We consider maintaining the transatlantic collective defence partnership within NATO's framework as the priority and thus we are committed to participate in strengthening the Alliance capabilities.

Czech companies have shown that they are more than willing partners for large defence industry players with worldwide reputation, as is also demonstrated by their growing involvement in supply chains. From 2019 onwards, Army of the Czech Republic is going to carry out several large acquisition projects headed by the acquisition of a new infantry vehicle, which will require the greatest possible involvement of domestic defence industrial companies, for example, in terms of transferring part of the production or creating maintenance and repair capacities.

The Czech defence industry is on the right track to continue in the direction that has been established in the period of the First Republic and which lies in the professional approach and the provision of technologically advanced products and services, which are also able to compete in foreign markets. It is therefore my pleasure to introduce this year's first issue of the Czech Defence Industry and Security Review, where you can find the most recent news from the Czech defence industry sector.

*Lubomír Metnar  
Minister of Defence of the Czech Republic*



# Opening speech by Mr. Miloslav Stašek

## State Secretary of the Ministry of Foreign Affairs of the Czech Republic



Dear readers,

I am honoured to introduce you the latest CDIS Review issue. Defence and security industry represents a significant part of our Czech economy. Therefore it is important to continually strengthen its position by supporting Czech businesses and their operations on both domestic and international defence and security markets. In this regard, I would like to mention the great role of projects of economic diplomacy, the so-called PROPED. It is a key instrument of the Czech economic diplomacy that aims to help our companies to promote their exports by seeking new business partners and opportunities abroad. More than 30 projects were carried out in 2018 with a budget of 8.7 million CZK in the defence and security sector. The success of PROPEDs refers to the effective cooperation between

public and private sector. Projects organized within PROPED in various countries, such as South Africa, Brazil, the Philippines or Indonesia demonstrate not only the diversity but also great versatility of PROPEDs. They help Czech companies to get familiar with the new business environment via exhibitions, seminars or B2B meetings while assisting with creating new contacts essential to entry the foreign market. The feedback from companies is very positive. Our plan is to continue with PROPED and focus on delivering even better services to Czech companies. It is also necessary to mention the Future Forces Forum which took place in October 17-19, 2018 in Prague and attracted visitors from armed and security forces, public and private institutions and companies from defence sector. The pur-

pose of the event was not only to raise awareness of the Czech defence industry, but also to emphasize the importance of PROPED for the defence sector and to offer companies such a tool.

I strongly believe that due to the excellent products and services of our defence and security companies and the work of our embassies abroad, we can help to further promote and preserve the unique quality and prestige of the Czech defence and security industry in the world.

*Miloslav Stašek  
State Secretary of the Ministry of Foreign  
Affairs of the Czech Republic*



# Message by Mr. Jiří Hynek

## President of Defence and Security Industry Association of the Czech Republic



Dear exhibitors, dear visitors,

Czech defence and security industry is well known for its long-term history, unique structure, high-quality products and big innovation potential. Czech producers of military material always had to fight with limited options of the domestic customer given by small size of our country and its armed forces. Therefore, Czech producers of defence and security technologies had to constantly innovate their products that must be competitive mainly on foreign markets where we export 90 % of our production. Competitiveness of Czech products, whole scale of professionals and good name of traditional Czech arms industry create the cornerstone of Czech companies' export potential.

Majority of companies that present their products in this Czech Defence Industry & Security Review are members of the Defence and Security Industry Association of the Czech Republic (DSIA). For more than 20 years of its existence gained DSIA reputation of acknowledged representative of the Czech defence and security industry, important partner of Ministry of Defence, Ministry of Interior and Ministry of Foreign Affairs. DSIA also cooperates with the Parliament of the Czech Republic, in particular with the Foreign, Defence and Security Committee of the Senate and the Defence and Security Committee of the House of Deputies. DSIA represents the Czech Republic in NATO Industry Advisory Group (NIAG) and is present in structures of the Aero-

space and Defence Industries Association of Europe (ASD). There relations are stepping stones for efforts of the Czech defence and security industry to be involved in specific European, transatlantic and international projects

It is my pleasure to say that Czech products of defence and security industry belong to the world top products and main reference is given by the satisfaction of customers around the globe. I wish to all visitors and exhibitors to enjoy the exhibition and Czech defence and security products and services.

*Jiří Hynek*  
*President of Defence and Security Industry*  
*Association of the Czech Republic*



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# Interview with Deputy Minister of Industry and Trade

## Mr. Vladimír Bärthl



**Sir, in our last interview you mentioned the fact that to achieve success in export companies must be very well prepared, must have ambitious foreign expansion plans and offer quality goods or services that are competitive. Can you evaluate the success of Czech companies in foreign markets in the past year? In particular, we would be interested in success of the aviation industry and the defence and security industry abroad.**

From the export point of view those Czech companies active in aviation, defence and security industry were extremely successful. In the aviation industry exports grew by almost 47 per cent from roughly CZK 10 billion to almost CZK 15 billion in 2017. Exports to EU countries grew by almost 16 per cent, to non-European countries by 86 per cent. We do not have all the figures yet but we expect exports of avionics products was also very successful this year, as

evidenced by the fact that export in the industry grew by about 2 per cent in the first eight months. Similarly the last year in defence and security industry was also good for Czech companies. Exports of our products grew by almost 4 per cent in a total value of nearly CZK 11 billion.

Czech companies were traditionally successful in North America. They were involved in the supply chains of large foreign companies (for example Aero Vodochody was co-operating with Bombardier), they opened their branches in highly competitive markets (PBS Aerospace branch in Atlanta), they exported sports aircraft to foreign markets, they delivered solutions for airports and technology for space industry and they co-operated in R&D. The new generation of machines of from Aero Vodochody have interest from customers in Portugal, USA and Senegal. The civilian and military radars of ELDIS Pardubice have been successful in remote markets of Equatorial Guinea, India, and Indonesia. We see successful foreign investments in the Czech Republic from Bell Helicopters, Honeywell and GE Aviation that co-operate with ČVUT (Czech Technical University) on the development of a new turboprop engine. This is co-operation with high added value. Czech exporters are also exploring Latin America. Aero Vodochody in Brazil successfully co-operates with Embraer.

**It is not a secret that you are a lover of aircraft and also a pilot and you are a big promoter of Czech brands. And we also know that you use this hobby for your business trips. Can you tell us more about this?**

You're right, I keep the private pilot certificate obtained in Canada and later enhanced in Europe. I was indirectly brought to flying by my father, now he is 82 years old and still active pilot (also an author of

beautiful aerial photographs!) operating at his home airport in Teplice. I do not remember when I decided to combine these pleasure with useful activities using the sport aircraft for my business trips abroad and thereby promoting our aircraft manufacturers. But it is not just aircrafts that I used, I was testing a prototype of Jawa motorcycle Vintage 660 on my business trip to Bratislava, I really enjoyed it. But back to aircraft, as far as I know, the Finnish Prime Minister is also a pilot and he flies by a small plain on his business trips but he doesn't use the domestic production aircraft. We managed to promote Czech ultralight aircraft during my flight to Luxembourg on EU Council meeting, I flew to the Farnborough Airshow in Great Britain using a traditional Czech aircraft made by Zlín Aircraft company. I flew the same aircraft on my business trip to Competitiveness Council in Tallinn during Estonian EU presidency. On both trips I had the privilege of safety pilot assistance assured by Mr. Korběl, the legendary Czech aerobatic pilot. And I was happy to promote Czech aircraft Zlín during my trip to informal meeting of trade ministers in Innsbruck. I think this is a good way to show confidence in light and ultralight aircrafts coming from Czech production, to show these plains are suitable for recreational flying as well as for business trips to prestigious multilateral events abroad. The response from foreign business partners and also from Czech companies of aviation production sector is quite positive, Czech companies appreciate this way of active state support.

**The United States of America has been the largest Czech business partner outside the EU for several years. In 2017, exports from the Czech Republic to the USA reached almost CZK 88 billion, with the main export items being jet engi-**

**nes, turbines, pumps and weapons and ammunition. In March, the US introduced new tariffs on steel and aluminium. Will this situation have an economic impact on Czech companies and the economy of the Czech Republic?**

Yes, this situation has a negative economic impact, and we therefore consider the steps of the United States regrettable. Such protectionist measures limit the benefits of global trade and have a negative impact on both exporters and consumers. Nevertheless, the United States remains an important partner, our main non-European export destination, and we are trying to address the situation. In June of this year, the US Administration imposed customs duties on steel and aluminium in the range of 25 % for steel and 10 % for aluminium. The EU responded by imposing customs duties on US imports of EUR 2.8 billion. At the same time, this dispute is being resolved in the World Trade Organization, as we consider US duties to be a violation of WTO rules. When looking at specific impacts on Czech companies, these duties relate to a direct Czech export of steel products in the amount of USD 200 million per year, and in the case of aluminium in the amount of USD 10 million. The Czech export of these affected items represent less than 10 % to the United States but other exporters mainly delivering to the US market are also negatively affected. The impact on them will be much more pronounced. This is very negative and Czech companies are influenced by this situation. However, we have information that some Czech companies have taken the opportunity to apply for

individual product exclusions which is the only way to avoid these measures. Even if we assume that the impact of the new US tariffs on total Czech exports will be marginal, we want to fully stabilize our relations with the USA. We support the constructive dialogue that takes place at the European level with the United States which started in July when the European Commission President Jean-Claude Juncker and President Trump met.

**But let's stay with the aviation industry. Our Review magazine will participate in LAAD Brazil or Paris Air Show in France next year. Which countries are the largest buyers of Czech products and related services and in what way did the Ministry of Industry and Trade of the Czech Republic support the aviation industry within its field missions this year? What do you plan for 2019?**

Our products, especially weapons, ammunition, defence systems and military equipment, have traditionally been acknowledged worldwide. With these commodities, we are undertaking territorial diversification, so 60% of our exports of these products are distributed to non-EU countries. Within the EU, we mainly export to Great Britain and Spain. In Europe to Switzerland or Russia. Significant export territories in the aviation industry last year to non-European countries included the United Arab Emirates and the United States, followed by Iraq, China, Brazil and Indonesia. This year we have been successful in the United States, the United Arab Emirates, Brazil, Iraq, Kenya, Pakistan and Israel.



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The Ministry supports Czech defence industry exporters in broadscale of their activities.

In April 2018, we participated in the organization of a business conference titled 'Czech Air Force' in Moscow. In June, the Czech-Ukrainian intergovernmental commission met with representatives of the Ministry of Defence. In September of this year, the Minister took an important business mission with defence sector companies to Azerbaijan and Georgia. As part of the Aid For Trade program, a development co-operation program under the auspices of the Ministry of Industry and Trade, we implemented a project to improve the services of a new airport in Ulan Bator. Within this project we promoted specialised seminars that took place in Mongolia in May with the participation of Czech experts and we organised a mission from the Mongolian Civil Aviation Authority to the Czech Republic in September. We organised an incoming mission of the aviation industry from Canada and the USA to the Czech Republic in March. In November 2018, Czech companies took part in the Toronto Air Summit.

As a part of the Czech official participations in international fairs our Ministry supported the Defence Services Asia Exhibition and Conference in Malaysian Kuala Lumpur in April 2018, the EUROSATORY Defence Exhibition in Paris in June and the world's most important airline fair in Farnborough, UK, in July 2018. In 2018 two NOVUM KET projects of the CzechTrade Agency co-financed by the EU were held: AERO 2018 Friedrichshafen and Expo Air 2018 Munich. The CzechTrade Agency also organized a commercial presentation of joint stands for Czech companies at FIDAE 2018 in Chile, International Marrakesh Air

Show 2018, Aeromart Toulouse 2018 and China Aviation Exhibition Zhuhai 2018.

As for the events planned for 2019, the CzechTrade Agency plans to participate in the FAMEX trade fair in Mexico and at the AERO 2019 fair in Friedrichshafen in Germany, the Ministry prepares for Czech official participation at the IDEX Arms Trade Fair in Abu Dhabi in February, the Paris Air Show 2019 at the Le Bourget Exhibition in Paris in June, the aviation fair MAKSS 2019 in Moscow in July and the DSEI 2019 Defence Trade Fair in London in September. We also prepare, in co-operation with the Ministry of Foreign Affairs, projects for the promotion of economic diplomacy, i.e. PROPEDs on aviation, the AéroMart Air Mission in Canadian Montréal, participation in the Air Venture Small Sport Aircraft Trade Fair in Oshkosh, the airline presentation in the Russian Federation and the Incoming Mission from Embraer. In August 2019, we would like to repeat the successful business conference 'Czech Air Force' in Moscow and organize its continuation in co-operation with the MAKSS Fair.

**What will be the role of the Ministry in drawing on the European Defence Fund? Is it possible to consider the co-financing development projects of EDF from the Ministry funds (will EDF finance for example 20-50 %)?**

The European Defence Fund will become fully operational by 2021. It will connect with the European Defence Industry Development Program (EDIDP) which will be launched in 2019.

EDIDP has three priority areas and the challenges will be separate for 2019 and 2020. The program operates with funds of EUR 500 million. The level of EDIDP fun-

ding ranges between 20 % and 90 % but the funding rate can be increased by 35 % up to 100 % through bonuses.

The draft regulation on the EDF was presented by the Commission in June 2018 with the approval by the European Parliament being scheduled for the first half of 2019. For EDF, the same co-financing model as for EDIDP is envisaged.

In view of these facts, it is too early to consider co-financing of projects by the Ministry of Industry and Trade. In addition, the European Commission plans to evaluate the EDIDP program and intends to use the conclusions in EDF. To be honest, we would rather wait a little bit for the reaction of the companies involved in specific projects.

**At the beginning of October the 60<sup>th</sup> International Engineering Fair took place in Brno and the Minister of the Ministry of Industry and Trade signed a Memorandum on Shared Business Support with Representatives of the Czech Team. Could you introduce us to this platform?**

The Czech Team was established as an initiative of state institutions that are engaged in supporting business, innovation and providing export support services. The aim is to create an integrated system of state assistance at all stages of the business circle, from idea to development, from investment to internationalization and thereby contribute to creating a favourable business environment that will help to make the Czech Republic a technological leader in production of products and services with higher added value. Each member of the Czech Team provides Czech entities with a set of services. Within this platform it is important to link and complement these services together and deliver greater business success. This co-operation will also contribute to better information on assistance and access to R&D and innovation support services, business development, export finance, investment and internationalization of firms. I personally welcome the establishment of the Czech Team mainly because I understand the pro-export policy in a broader context than just as some help to our exporters abroad. The Czech Team fulfils this wider concept.

*Mr. deputy minister, thank you for the interview*  
Šárka Cook

# CzechRepublic

# IDEX

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17 – 21 February 2019  
Abu Dhabi  
United Arab Emirates



MINISTRY OF INDUSTRY AND TRADE  
OF THE CZECH REPUBLIC



# Fire Rescue Service

Concept of a modular solution for combatting fires in dangerous areas and forest fires of the Emergency Unit of the Fire Rescue Service of the Czech Republic.

## Purpose of the acquisition

The Emergency Unit is an integral part of the Fire Rescue Service of the Czech Republic, which is deployed in the event of large-scale disasters and emergencies and in extended interventions taking a long time. Due to its mission, the Emergency Unit uses a lot of special equipment and vehicles for which it has appropriately trained crews. Recent experience (such as that we have been acquiring for more than four years in connection with the elimination of consequences of explosions in the Vrbětice Munitions Depot) and

safety risks attributable to industrial development and climatic conditions show increasing numbers of forest fires, fires of industrial facilities, but also a risk of fires of ammunition and hazardous substances kept in depots and warehouses. Such events have made the Fire Rescue Service of the Czech Republic focus on special equipment emphasizing high survivability, protection of crews, maneuverability, and potential deployment in dangerous scenarios.

The Emergency Unit will establish its own module consisting of, inter alia,

four new types of vehicles and focused on fires in dangerous areas and large-scale forest fires. It is expected the module could be deployed both at home and abroad. The equipment and vehicles comprising the module could be the basis for the potential future establishment of centers dedicated to combatting fires in dangerous areas. As the Emergency Unit operates from three locations (Hlučín, Jihlava, Zbiroh), each of them is expected to receive one specimen of each of the types listed below.





Structure of the proposed module:

**CZS 40 8x8 hardened water tender 3 pcs**

**Hardened 4x4 command and reconnaissance vehicle 3 pcs**

**10x10 high capacity water tender 3 pcs**

**8x8 heavy-duty off-road recovery vehicle 3 pcs**

However, the module of the Emergency Unit will not comprise only the above types; it will also make use of existing vehicles in the inventory of units of the Fire Rescue Service, such as hose trucks, earthmoving machines capable of operating on fire sites, water tenders, high-capacity pumps, and naturally also support containers for intervening units. The structure of the module of the Emergency Unit will always reflect specific conditions on the site and requirements of the commanding officer. The vehicles comprising the module can also be deployed autonomously (e.g. for transporting water, removing obstacles from roads, or monitoring on the fire site). The module is expected to be used to fight the most difficult fires in industrial plants

and forests. In short, the types of fires exemplified by the abovementioned explosions of the munitions depot in Vrbětice (2014), a fire followed by an explosion at Poličské Strojírny (2017), a fire and an explosion of fuel trucks on the premises of a fuel storage site in Loukov, Kroměříž District (2018), an explosion in Explosia, Semtín (2011), or an explosion followed by a fire on the premises of Unipetrol in Litvínov, a forest fire in Bzenec (2012), and a number of others.

### **CZS 40 8x8 hardened water tender**

Since the beginning of October 2018, two specimens of these hardened vehicle have been in the inventory of the units stationed in Hlučín and Zbiroh. The CZS 40 8x8 is a special vehicle designed to extinguish fires in dangerous and inaccessible areas, such as:

- munitions depots and sites where handling of explosives takes place,
- former Military Training Areas,
- industrial facilities housing chemical or otherwise dangerous operations,
- forests and inaccessible places in hilly areas,
- hazardous waste depositories.

The vehicle is designed to be highly re-

sistant against mechanical damage and provide a high level of protection to its crew. Furthermore, it can withstand effects of high temperatures produced by large-scale fires or when negotiating a burning obstacle.

Basic characteristics of the hardened water tender:

- 8x8 chassis with excellent off-road properties and good maneuverability (turning diameter 19.7 m),
- four-seat armoured cab with a high mechanical and ballistic protection level according to the STANAG 4569 Standard, Level 2a/b, equipped with a filtering and ventilation system and isolating breathing apparatuses for crewmembers,
- 12,000 l water tank,
- 4,000 l/min water pump with a pump&roll feature,
- 4,000 l/min roof-mounted monitor and a 2,000 l/min bumper-mounted monitor, both with adjustable flow shape,
- camera system mounted on a telescopic mast, with wireless image transfer both to displays in the vehicle and elsewhere,
- chassis and superstructure water mist sprinkling system,
- all devices operated from the vehicle's cab,





- add-on chassis protection against mechanical damage,
- electric power, hydraulic and air lines protected against flames and radiant heat,
- central tyre inflation system with run-flat tyres.

The vehicle's capability of autonomous operation of both monitors under control of different crewmembers combined with a possibility to fight the fire on the move and the evaluation of images provided by the thermal camera makes the firefighting action more efficient and enables the monitors to be employed and aimed more effectively.

### Hardened 4x4 command and reconnaissance vehicle

Its technical parameters predestine the vehicle for reconnaissance in the most demanding conditions. The vehicle is also capable of a firefighting action without its crew having to leave the cab. The reconnaissance vehicle is designed to operate under the same conditions as the hardened water tender. Thanks to its design and size, however, it can negotiate more difficult terrain and can also cope with confined spaces in a better way.

Basic anticipated characteristics:

- 4x4 short wheelbase chassis with large approach angles and excellent off-road properties,
- armoured body design with an increased level of mechanical, ballistic, and thermal resistance,
- powerful engine with an automatic transmission for driving and nego-

- tiating obstacles in the most difficult terrain,
- tank containing at least 2,000 liters of water,
- pump and a bumper-mounted monitor with adjustable flow shape,
- chassis water mist sprinkling system,
- all devices operated from the vehicle's cab,
- add-on chassis protection against mechanical damage,
- electric power, hydraulic and air lines protected against flames and radiant heat,
- central tyre inflation system with run-flat tyres.

Thanks to its design and dimensions, this vehicle will get closest to a forest fire of all fire tenders. Its mission is thus not just reconnaissance in difficult terrain, but also the first intervention against new spots of fire or in remote areas. To this end, it is equipped with a

bumper-mounted monitor, firefighting backpacks and firefighting accessories which are an integral part of the vehicle's equipment.

### 10x10 high capacity water tender

It is a special vehicle designed to transport large quantities of water from a source to the fire site, or to serve as a water reservoir on the site. Thanks to its technical properties, it can also transport water on unpaved roads or in terrain.

Basic anticipated characteristics:

- 10x10 chassis with good off-road properties and high maneuverability (four steerable axles),
- tank containing approximately 24,000 liters of water,
- 4,000 l/min water pump,
- roof-mounted monitor with adjustable flow shape allowing the vehicle to participate in firefighting operations,
- two-seat unarmoured crew cab,
- central tyre inflation system with run-flat tyres.

The vehicle will also be equipped with means that will permit it to refill its tank from a hydrant or a natural source, although this capability is only a back-up option, as it is expected that it will be primarily refilled at a pumping point or from other water tenders transporting water to the fire site. The vehicle's tank will include a pump with a proportioning system and will be able to deliver a foaming agent to



the bumper-mounted monitor of the hardened water tender. It is expected that the foaming agent will be pumped from external containers (such as IBC containers).

### 8x8 heavy-duty off-road recovery vehicle

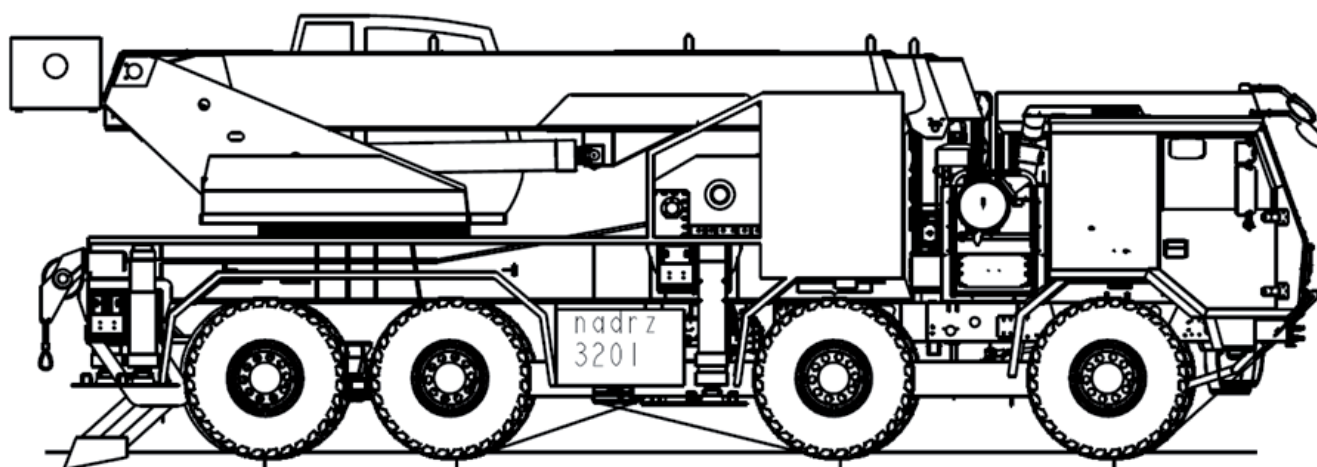
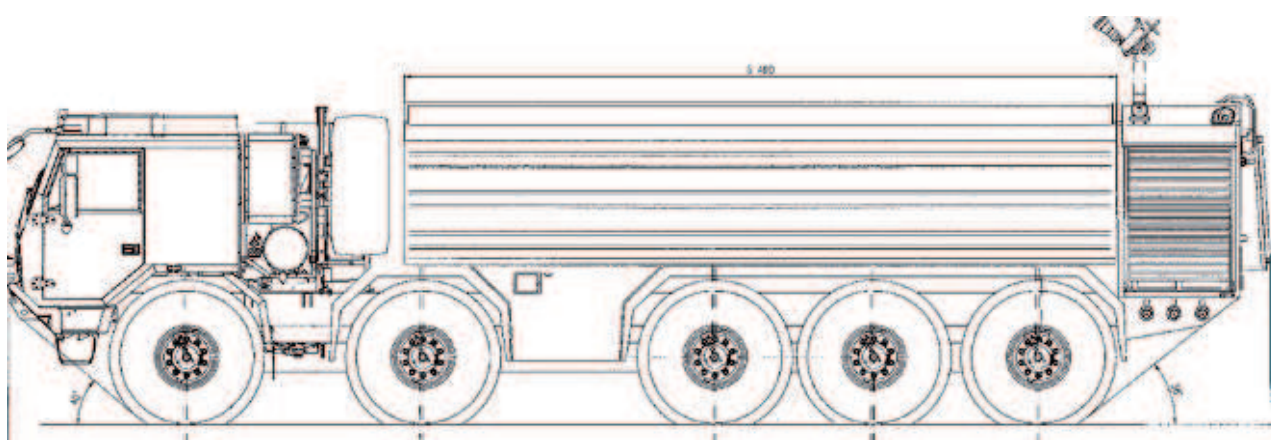
The recovery vehicle is designed to support operations involving the deploy-

ment of heavy equipment, especially at fire or accident sites without any paved roads. Its mission is to clear roads and to recover, evacuate, or otherwise handle damaged vehicles on the site.

Basic anticipated characteristics:

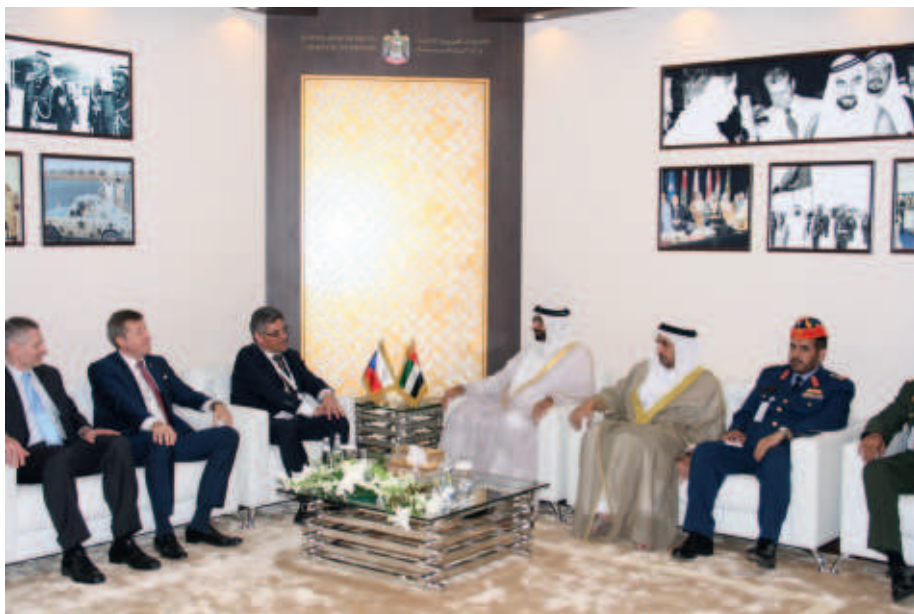
- 8x8 chassis with excellent off-road properties and high maneuverability (four steerable axles),
- 30 t lifting device/crane,

- pair of winches able to develop a direct pulling force of 20 t,
- possibility of the crane and the winches to be used independently on each other, including remote/wireless control from a safe distance from the vehicle,
- ability to tow another vehicle,
- two-seat unarmoured crew cab,
- central tyre inflation system with run-flat tyres.





# United Arab Emirates offer wide range of business opportunities



Over the recent times the UAE have turned into the Middle East's second largest economy and one of the most open in the world. The UAE as one of the world's leading oil producers had started successfully nurturing its non-oil sectors. Although still highly dependent on petroleum income, the UAE has the most diversified economy in the Gulf Cooperation Council region. The non-oil sector currently accounts for around 70 per cent of the national GDP, with the figure expected to swell to 80 per cent by 2021. Each of the seven Emirates has different economic conditions and priorities, although they all adhere to an overarching UAE Vision 2021 development strategy. While Abu Dhabi holds most of the country's oil and gas reserves and controls most national savings, Dubai acts as the commercial hub of the country. Domestic economic growth will continue to be driven largely by these two emirates, with Dubai attracting huge foreign investments as it prepares to host the historic 2020 World Expo and Abu Dhabi injecting more funds into infrastructural works. The UAE have be-

come an important center of regional trade. There are hundreds of Indian, Iranian, Chinese and other companies focused on re-exports to Asia and Africa. It currently accounts for about 50 per cent of all imports into the Emirates.

The UAE offers diverse market for foreign companies in many industries. Best prospect sectors include: Defense, Safety & Security, Energy (Nuclear and Renewables), Engineering & Construction, Aerospace and Health care/Medical Devices as well as Tourism. Czech exports to the United Arab Emirates are now \$ 837 million. The Czech export to the UAE has a long tradition. For example in 1984 there were significant orders, such as the Umm Al Naar power

plant implemented by Škodaexport or the supply of 1,200 Tatra vehicles to the UAE Armed Forces in 1998. At present, it accounts for 20 per cent of exports of computer components and recording equipment, telecommunication devices and 10 per cent of glass products. The remaining half of the exports represents dozens of items like switchboards or pumps. Among the Czech companies whose products can be seen in the United Arab Emirates, it's necessary to name MADETA which introduced Akawi cheese to local consumers. PRECIOSA has equipped its chandeliers with a number of palaces, airports and hotels, especially in Abu Dhabi. One of the biggest successes was a contract for the supply of complete lighting for the presidential palace. In recent years, LASVIT has also significantly strengthened its position in the market, which has won orders for chandeliers for the Dubai Metro, as well as for a prestigious restaurant in the world's tallest Burj Khalifa building or for the Waldorf Astoria hotel in the Ras Al Khaimah emirate. There are also many others from defense sector as well, like TATRA, OMNIPOL, ERA, Česká zbrojovka etc.

The UAE is the leading country in the Middle East when it comes to developing the clean and renewable energy sector. It is





targeting to reach 50 per cent of its energy sources by 2050, with 25 per cent of the energy mix expected to come from solar power by 2030. The recent study shows that the UAE needs USD 35 billion to meet the 17GW target. The massive investment in the clean energy sector is promising as the world turns to these resources to cope with the impacts of climate change. However, outlook shows that the UAE will continue to primarily depend on natural gas for energy supply by 2030, but it seems to be impacted by energy conservation measures.

Tourism and trade fairs business has played a large part in the success of the country's economic diversification. The UAE's two world-class airlines, Etihad and Emirates, as well as constant upgrading of aviation infrastructure, have played a major role in the advance of the tourism industry and are key contributors to the economy. Many trade fairs in Abu Dhabi and Dubai are not only among the largest in the region, but some of them are also world leaders in their field. This applies, for example, to GITEX, Gulfood, Big 5 or ArabHealth. The International Defense Exhibition and Conference – IDEX is one of the most strategically defense exhibition in the world. IDEX is the only international defense exhibition and conference in the MENA region demonstrating the latest military technologies progress in land, sea and air sectors of defense. It is a unique platform to establish and strengthen relationships with government departments, businesses and armed forces

throughout the region. During the participation of Czech companies at IDEX 2017 under the patronage of the Defence and Security Industry Association of the Czech Republic, VOP CZ announced partnership with local company NIMR. VOP CZ is marketing partner for a wide range of NIMR vehicles in the Visegrad countries region, especially for the - the Czech Republic, Poland, Slovakia and Hungary.

Between 2013 and 2017, the UAE's annual defense expenditure stood at an average of \$23.4 billion per year and this is expected to increase to an average of \$35 billion over the forecast period. On a cumulative basis, the country is expected to invest around \$174 billion for defense purposes, of which around \$66 Billion is earmarked for capital expenditure to fund defense procurement. By investing in the U.A.E.'s defense sector, Abu Dhabi seeks to advance the country's interests while creating lucrative commercial opportunities outside of the oil and gas sectors for U.A.E. nationals. To create a "competitive knowledge economy" the U.A.E. has invested in major initiatives such as the National Innovation Strategy, U.A.E. Vision 2021, and Abu Dhabi Vision 2030.

The UAE is a net importer of military assets, and the coun-

try is open to all suppliers; however, the government is currently working to reduce its dependence on defense imports through the development of its own defense manufacturing capability. The three largest players in the UAE's defense industry are Mubadala Investment Company, Taawazun, and Emirates Defense Industries Company (EDIC). Over the past decade these entities have formed partnerships with a number of international players. The U.A.E. Air Force and Air Defense traditionally receive huge share of the U.A.E.'s total defense procurement dollars, followed by the Joint Aviation Command, Land Forces, the Presidential Guard, and the Navy. The U.A.E.'s procurement priorities include missile defense; precision fires; intelligence, surveillance and reconnaissance (ISR); command and control, expeditionary logistics; and maintenance, repair, and overhaul. The UAE GHQ Critical Infrastructure & Coastal Protection Authority (CICPA) is also expanding rapidly and is tasked with protecting key infrastructure such as water desalinization plants, oil and gas platforms, pipelines, and the Barakah nuclear site.

In 2017 the UAE had launched the National Space Programme under which will prepare Emirati cadres specialized in air-space sciences. Young Emirati cadres will execute the National Space Programme. Launching the National Space Programme was part of the UAE's ambitious space programme of reaching planet Mars by 2021 and building the first settlement there by 2117. In this regard UAE is looking for international cooperation as well.

*Daniel Blažkovec, First Secretary – Economic and Commercial Affairs, Embassy of the Czech Republic in Abu Dhabi*

*Photo: Šárka Cook*





# UVA 500

## New Water Treatment Plant for crisis situations

AGADOS's portfolio also includes, besides the PK 4 KAGA mobile field kitchen, which was awarded the Golden IDET 2017 and the Prix IDEB 2018, and other special projects, UVA 500 water treatment plants.

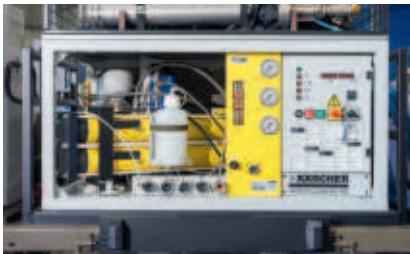


The basic task of the UVA 500 is to modify contaminated water (biologically, chemically, radioactively) into drinking water or the desalination of seawater. For this purpose, the Waterclean 500 - RO plant by the company Futuretech is used. It combines various physical and chemical processes and ensures effective water treatment in a wide range of pollutants. An integral part is also a solid particle filter and a self-cleaning device. Another element located on the unit is an electric chlorinator designed

for the active production of chlorine from edible salt for disinfection purposes. By its use, the transport and storage of hazardous chemicals is rendered unnecessary. To ensure the unit operates in field conditions, the chassis is equipped with a central power generator so that it is possible to connect other devices.

The UVA 500 water treatment plant uses the same type of chassis as the other AGADOS special products designed for use by armies and components of the Integrated

Rescue System. It is a single-axle sprung chassis with a total weight of 2,000 kg. The trailer is equipped with a height-adjustable drawbar allowing connection to towing vehicles of different types (depending on the height and type of the towing device of the vehicle). The whole unit is covered by a canvas with a tilting structure that covers the work area. The chassis houses lockable boxes to store necessary accessories and chemicals. The workplace is also equipped with lighting.



### Advantages

- The chassis makes it possible to move the device in rough terrain
- Quick and easy commissioning
- Easy to handle (operated by one trained person)
- Use of height-adjustable drawbar (attachment variability)
- Ensured lifecycle of the product - service provided worldwide
- Fully automatic device

### Technical data

- Dimensions (l×w×h) 4,100×2,250×2,850 mm
- Total weight of 2,000 kg
- Unit capacity up to 550 ℓ an hour | 13,200 ℓ a day
- Chlorine production up to 6000 ℓ an hour

Other special products brought to market by AGADOS are, besides the PK 4 KAGA mobile field kitchen, the larger PK 6 field kitchen, the NAVA 2000 mobile tank, or the NANUK freezer box for preserving fresh food even in extreme conditions. Furthermore, the company offers the OVA mobile lighting tower suitable for illuminating bases, areas of accidents, fires, etc.

AGADOS is focused on the production of trailers of all categories. In this area, it is a company of European importance - just half of the production is exported. The annual amount of produced trailers is more than 30,000. AGADOS's production grows year by year due to growing interest in its products.



PK 4 KAGA



PK 6 KAGA



NAVA 2000



NANUK



OVA



# REDO

## The Producer of Textile Products for Army, Police and Armed Security Forces

The company REDO s.r.o. based in Prostějov has been on the market for textile products for the army, police and armed security forces for more than 25 years. It is an exclusively private company. REDO s.r.o. was founded in 1992 and was one of the first companies in the former Eastern bloc to supply military equipment to NATO countries.

REDO manufactures and supplies mostly textile products such as tactical and ballistic vests, backpacks, pouches, holsters and carrier straps. The core product range that the company is currently focusing on is a range of ballistic vests. These products include lightweight ballistic vests, heavy ballistic vests, including vests featuring quick-release vests, and ballistic vests with stab protection. All ballistic protection products are subject to thorough development and testing in renowned testing centers both in the Czech Republic and abroad. The company is able to deliver ballistic protection exactly to the customer's wishes and choose the appropriate level of protection according to the assignment. Ballistic inserts are normally supplied according to standards used in European countries, such as US Standard MIL STD NIJ 0101.04, Czech Standard ČSN 39 5360 or German VPAM. Of course we also provide other standards according to the client's wishes.

Among clients of REDO s.r.o. there are the military and police forces of Germany, Austria, the Czech Republic, Switzerland and The Netherlands.

Major customers include the German Army, where the company supplies annually thousands of products within several parallel public supply contracts for tactical belts, carrier straps, transport bags and carryalls and similar products. Another very important client is the Austrian Army, where the company has been supplying a large part of the equipment within the framework of public contracts repeatedly since 2004. The company REDO also, of course, supplies the domestic market, both the Czech Army and the Police of the Czech Republic, where the development responds to the requirements of special military and police forces. Last but not least, the company's portfolio includes the development and supply for various units

of the fast rescue component, firefighters and other services. For these groups, there are separate product lines that are specifically designed to perform health and asset management tasks.

One of the company's latest products are active carbon bandages that belong to the category of medical supplies. The active carbon bandage is a sterile active carbon bandage in the form of a micro-heater with increased absorption induced by osmotic pressure with a pronounced diffusion pump gradient. These patent-protected dressings are manufactured by ACB VALE, s.r.o. and the company REDO is a global distributor of this product.

In general, it is a band based on an active pure carbon, with high absorption, antibacterial and haemostatic effect. It can effectively stop bleeding, cleanses the environment of the wound, and significantly helps to heal the wounds, prevents secondary infection from the damaged tissue and from the external environment. With its absorption and antibacterial effect, this bandage greatly aids the healing of inflammation and relieves pain. This is to some extent a low-cost treatment.

These products are based on carbonized hydrate-cellulose fibers. The fiber itself, being thin of several tens of microns, is connected to a thread with very high absorption, which is approximately 36 times higher than similar products, at zero toxicity. It retains its properties even if the sterility is impaired.

One of the key features of this bandage is the simplicity of the application that can be handled even by a non-professional.





Furthermore, this bandage displays a very rapid onset of effects and trouble-free tolerance in all patients, without exception. However, the main favorable aspect is the speed and efficiency of healing.

This product is excellently described by Václav Bauer, the inventor of the bandage: "It's not a medicament in the true sense of the word, the bandage works due to its strong cleansing potential. Basically, it's just a bandage, but its effectiveness astonishes doctors. Everything heals eight times faster."

The functionality of the bandage from the point of view of non-experts is that the dressing can absorb toxin from the human body, seals it and neutralizes it. The excess sorbent may protrude out on the top of the dressing and thus further accelerate the healing process. This is due to the density and consistency of the fiber - the capacity of one human hair is 2,000 carbon fibers. This effect is further enhanced by the top layer of dressing that serves as a gradient of the diffusion pump.

In other words, the surface area of 1 cm<sup>2</sup> of the carbon layer of the dressing could be stretched up to the size of one and a half football pitch. Such is the power of mechanical wound cleansing.

According to the inventor of this product, there is nothing in the world that would cleanse the wound like this carbon fiber does. Active carbon in the form of our product is used in many areas of modern medicine:

- Treatment of acute bleeding wounds, either in injury or active use in surgery or

dental procedures.

- Treatment of wounds that are difficult to treat by the "wet healing" principle, such as ulcers and inflammation in patients with diabetes, etc.
- First aid in the case of intoxicated wounds, as well as complex treatment of animal bites or insect bites.
- Treatment of burns and subsequent undesirable defects on transplants.

After registration, an active carbon bandage was introduced and cooperation with the GPs was established. The bandage is now certified, patented and ready to export to more than 20 countries all over the world. Carbon use has been used in medicine for a long time, but the uniqueness of this product is that the purity of carbon in our product is 99.99 % and can be applied directly on the wound to accelerate treatment with extraordinary carbon effects. No side effects or allergic reactions are known.

This bandage is currently available in three versions of the Bauer Bandage Special - a separate square of carbon fiber 10x10 cm, two versions of bandage for military purposes: BAKOP 1 - bandage with one square of active carbon up to 10x10 cm and finally BAKOP 2 - two squares of bandage with active carbon up to 10x10 cm.

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# Mission Computers for Ground Forces, Tactical Command and Control Systems

Mission computers aid military commanders and staff to organize information and overrun the enemy in the area of intelligence and information. The primary goal is to collect, process, visualize, and distribute tactical information on all the command and control levels.

OPTOKON provides a complete line of hardware products in the area of harsh environmental networks and the implementation of specialized information systems.

Our range of Mission Computers, Ethernet Switches and UPS features adaptable core processing capabilities that can host multiple

server and VoIP call manager in a single low-SWaP device. As the center of the mobile data network, it provides an integrated and versatile communications server for military, public safety, C4ISR and other network-centric communications systems.

The system is equipped with powerful Intel® Xeon® processor that delivers exceptional value and unmatched performance density per watt in an SoC package, up to 128 GB RAM, two removable Storage SSD discs and a wide range of connection ports, both fiber optic and copper wires. The LMCP is available in ruggedized containers to fulfill all the demands placed on communication systems used in harsh environmental conditions. Fiber optic ports are fitted with rugged HMA connectors operated using Expanded Beam technology, which enables to use all the benefits of high-speed data transmission in field conditions.

IPMI provides a way to manage a LMCP that may be powered off or otherwise unresponsive by using a network connection to the LMCP rather than to an operating system or login shell.

## Features:

- Intel® Xeon® processor D-1541 (12MB, 8-Core, 16 Threads, 2.1 GHz)
- System memory Up to 128GB DDR4 2133MHz
- Solid State Drives
- 1x M.2 NVMe PCI-E 3.0 x4, up to 1024 GB
- Dual removable 2.5" SATA SSD up to 2x 2TB
- 2 Drive Trayless Hot Swap SATA Mobile Rack Input / Output
- 3x or 5x routed 1 GbE, Linux-based router solutions supports RIP v1, v2 and OSPF v2
- 8x USB 2.0 and 1x USB 3.0
- 8x serial RS232
- CAN bus, High-speed CAN transceiver 82C251
- Video VGA port Switch
- 8x GE LAN RJ-45 ports with PoE+
- 2x GbE Fiber Optic HMA connectors
- Management and monitoring
- IPMI with dedicated LAN, Support for Intelligent Platform Management Interface v2.0 with



mission, data management and display management processing functions. With advanced mission computing, network data management and video surveillance functions, our cost-effective on-board computers are readily scalable for additional applications. The Computing Platform can include modules and applications enabling effective data preparation, processing, sharing and distribution within the command post.

## Light Mission Computing Platform LMCP-41H

The LMCP is a highly versatile mobile computing platform, which delivers a powerful and rugged network router, network switch,

- Power consumption
- Nominal conditions 85 W
- Maximum load 130 W + PoE power budget 120 W

### Field IP telephony systems

The LMCP server for IP telephony applications in field environments is an efficient central system for running Cisco IP Call Manager and related services, phonebooks, recording systems, etc. OPTOKON, a.s. developed for the needs of field hardened systems, a product line of IP phones that can be used beyond the scope of operational-tactical military networks.



### LMipt-41, rugged IP phone set

Ruggedized IP phone LMipt-41 is based on Cisco 8841 series and LMipt-21 on Cisco 7821 technology. Together with the LMCP server and other resilient elements from OPTOKON, a.s. it forms a complete and compact solution that can be connected to other telecommunication networks as a whole through various types of voice gateways.

The benefit of the LMCP server is the reliable centralization of telecommunication systems that meet the operational requirements of army field assets as well as conditions for working in extreme temperatures.

### Ethernet Layer 2 PoE+ Ruggedized Switch LMSW M series

The LMSW - M series models are Layer 2 military grade Ethernet PoE+ (Power over Ethernet) switches with up to 24x Ethernet ports (Gigabit or Fast Ethernet), up to 8x PoE+ ports and up to 8x 100/1000Base-X HMA fiber ports that provide stable and reliable Ethernet transmission. The LMSW M series models can provide redundant mechanisms with optional dual power input AC/DC design for critical applications that need always-on connections.

These switches can operate under a wide operating temperature range (- 40 to 70 °C) and are the ideal choice for harsh environments, such as military networking, and are also suitable for many military and utility market applications where environmental conditions exceed commercial product specifications.

These managed switches also support a wide variety of Ethernet

functions, including STP/RSTP/MSTP/ ITU-T G.8032 ERPS and multiple  $\mu$ -Ring for redundant cabling, advanced PoE management functions such as weekly PoE power scheduling as well as device auto-checking and auto-reset. They also support layer 2 Ethernet IGMP, VLAN, QoS, Security, IPv6, bandwidth control, port mirroring, cable diagnostics and Green Ethernet. In addition, these switches can also be managed by a Cisco-like CLI or Web Element Management System which offers a user-friendly and centralized device management platform and provides network administrators with the ability to monitor and configure these connected switches remotely.



### Features:

- Robust compact design resistant to harsh environmental conditions and rough handling
- 2x, 3x or 8x 100/1000Base-X FO port with HMA-J connectors
- 4x, 8x, 16x or 24x 10/100/1000Base-T with RJ-45 connectors, PoE+, total 180 W power budget
- Provides IEEE802.3af / 802.3at PoE output (30W per Port)
- Built-in power booster design up to 55 V DC for PoE/PoE+ output to stabilize PoE devices,
- and guarantee delivery of PoE power distance at 100 meters
- Redundant dual power input AC/DC: 176 - 242 VAC / 10.5 - 36 VDC
- EMC Standards according to MIL-STD-461E
- IP65 protection & fanless design

### OPTOKON HMA harsh environment connectors

OPTOKON offers several types of optical connectors for use in harsh environment climatic conditions. These are medium-sized connectors designed to connect nodes in harsh environment conditions using fiber optic cables. Special connector designs guarantee reliable operation even in the toughest operating conditions and are available for both multimode and single mode applications. HMA-J - Harsh environmental Expanded Beam fiber optic connector  
HMA-JF - Harsh environmental ferrule connector  
HMA-HX - Harsh environmental hybrid connector  
The HMA-J connector benefiting from Expanded Beam technology with the precision optical alignment system provides immunity from water, mud, dust, oil and other contaminants. The HMA-J hermetic coupling eliminates the need for adaptors and male and female mating halves.

### HMA-J

Optical Loss MM - 50/125 @ 850/1300 nm

0.7 dB typ.

Optical Loss SM - 9/125 @ 1310/1550 nm

1.0 dB typ.

Return Loss - 9/125 @ 1310/1550 nm

>32 dB



The HMA-JF uses 1.25 mm ferrules, which are already industry proven in both single mode and multimode applications. The unique design of the HMA-JF allows users to ensure high-performance and very low SFF insertion loss for Small Form Factor optical connectors under field conditions. The HMA-JF connector has a similar construction to the HMA-J connector and has all the benefits such as immunity from water, mud, dust, oil and other contaminants.

#### HMA-JF

Optical Loss MM - 50/125 @ 850/1300 nm	0.3 dB typ.
Optical Loss SM - 9/125 @ 1310/1550 nm	0.5 dB typ.
Return Loss - 9/125 @ 1310/1550 nm	> 45 dB (typical 48 dB)



Harsh environmental Expanded Beam fiber optic connector  
HMA-JF Harsh environmental ferrule connector

The new HMA-HX hybrid connector is the same as the HMA-JF connector with the exception that it offers two metallic pairs that can be used as electrical contacts to extend the connectivity of the connector.

#### HMA-HX

Optical Loss MM - 50/125 @ 850/1300 nm	0.3 dB typ.
Optical Loss SM - 9/125 @ 1310/1550 nm	0.5 dB typ.
Return Loss - 9/125 @ 1310/1550 nm	> 45 dB (typical 48 dB)



HMA-HX hybrid connector with two metallic pairs

These highly durable HMA connectors can be used in military applications, heavy industries, the petrochemical industry and broadcasting applications in order to establish temporary optical networks.

#### Tactical Cable - OPK-U-DSTTAC

**Manufactured by OPTOKON Kable Co., Ltd., s.r.o. Pelhřimov**  
**The member of OPTOKON Group**

One of the most commercially successful products from OPTOKON Kable Co., Ltd., a new Czech Optical Cable Manufacturer, is a multi-purpose, durable tactical cable with polyurethane jacket.

The basic structural element of this cable is that the fibers are especially mechanically and thermally resistant, easily stripped of secondary protection, which along with the kevlar yarn forms the core of the cable. The cable sheath is made of halogen-free fire retardant polyurethane with reduced smoke.

During development, the cable was subjected to demanding testing and proven to be suitable for use in the most demanding mechanical and climatic conditions. The cable is suitable for use not only in extreme military applications, but also, due to its properties, also in various civil applications, temporary installation of critical communication lines where quick retrieval and re-use is required, especially in heavy industries, mining, and various mobile applications, etc.

#### Main features of the OPK-U-DSTTAC:

- High mechanical resistance
- Chemical resistance
- UV resistant
- Excellent flexibility, even at temperatures well below freezing
- Meets the requirements of IEC 60794-1-2, TIA / EIA-455-41 and TIA / EIA-455-25 - military requirement
- Easy stripping of secondary acrylic coating
- High resistance to extreme temperatures (+ 85 ° C, -60 ° C)

**We are pleased to announce that OPTOKON will be participating in the OFC exhibition San Diego, USA (5.-7.3.2019), OPTOKON stand No. 5713 and IDEF, Istanbul, Turkey (30.4-3.5.2019), OPTOKON stand No. 323C. Please accept our invitation to visit us.**



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# Bavaria – economic partner Nr. 1 for Czechia, structure, trend, key areas

We can evaluate the overall Czech – Bavarian economic relations as very good and dynamic. This applies not only for the trade exchange, but also for other areas of economic cooperation (production joint-ventures, constructions, stock exchange, and wholesale). Many Bavarian entrepreneurs, especially small and middle-size companies, have already established joint-ventures in Czechia, respectively own subsidiaries. Whereas in the past, the Bavarian companies moved to Czechia especially its basic production, in the last years also more sophisticated assembling and production completion are being realized. Bavarian companies invest also in research and development.

Czechia is a Bavaria's fifth biggest trading partner (after the USA, Austria, China and Italia) with the overall turnover of 20.95 bn. euros in 2017. Czech export to Bavaria has amounted to 14.4 bn. euros with an annual increase of 10 per cent and has moved from the fourth to the third place (behind Austria and China). In the import chart from Bavaria, Czechia took the eighth place with the overall goods volume in the value of 6.5 bn. euros.

In the year-on-year comparison, Czechia reached a move from the sixth to fifth place of the biggest Bavarian trading partners (e.g. even before France or Great Britain). The turnover of the overall trade exchange between Czechia and Germany reached the volume of 87.8 bn. euros in 2017. Czechia is the tenth most important trading partner for Germany. Thus, trading with Bavaria makes up 23.8 per cent of the foreign trade with Germany. Bavaria remains the biggest Czech tra-



ding partner among the Bundes states.

## The development of the foreign trade – Czechia - Bavaria

Commodities structure of the foreign trade between Czechia and Bavaria comprises especially machinery, electrical engineering and transport vehicles as well as components for mobile vehicles.

Bavarian investments represent the most important part from the overall German investments in Czechia (German investments take up notably the first place in FDI to Czechia). They are targeted esp. into the areas of electro engineering, car industry and telecommunications. Among the most important investors in Czechia belong such companies as BMW, Linde, Allianz, Siemens, Burda, Knorr-Bremse, MAN, Osram, Rohde und Schwarz, Roland Berger, TÜV Süd, Wacker Chemie and Vltava Labe Press/Verlagsgruppe Passau.

## Current topics of the Czech – Bavarian economic cooperation

A great potential for a close economic cooperation after the visit of the Prime Minister Andrej Babiš in Bavaria in July 2018 and in line with the Map of Global and Sectoral Opportunities, we can see especially in the area of information and communication technologies, car production, aviation and space technologies and energy.

An interesting topic of cooperation from the Czech view is the "Industry 4.0" and digitalization. An inspiration in this area are firstly large Czech-German companies, such as Siemens or BMW with their digital factories or projects of Smart Cities, as well as state-run programs, e.g. the Center of Digitalization Bavaria established in Munich in 2015, or regional grant programs supporting the electro mobility. Industry 4.0 and economy digitalization are top topics of Czech-German cooperation in the research and development area.

The cooperation in science, research and innovation is also developing. In summer 2014, Czechia and Bavaria signed a memorandum, upon which a program supporting the Czech-Bavarian cooperation was established. The second phase of the cooperative research projects

in bn. euros

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Export	8,7	7,5	9,2	9,5	9,6	9,7	10,6	11,5	13,2	14,4
Import	5,1	4,0	4,6	5,1	5,1	5,3	5,6	6	6,3	6,5
Turnover	13,8	11,5	13,8	14,6	14,7	15	16,2	17,5	19,5	20,9
Balance	+3,6	+3,5	+4,6	+4,41	+4,5	+4,4	+5	+5,5	+6,9	+7,9

Source: Bavarian Statistics and Data Processing Office



runs between 2018 – 2020. Currently, the selection of projects is finalized. The Section of Science, Research and Innovation of the Office of the Government of the Czech Republic, Czech Academy of Science and Ministry of Education are developing an intensive cooperation with several Bavarian and German research institutions (Fraunhofer Society, Max-Planck-Institute, German Aerospace Centre and others).

In the premises of the Czech Technical University, a research and experimental environment under the name Testbed for Industry 4.0 has been established. The Testbed is a unique platform for an open cooperation between the industry and economic sphere – the major partners are: Siemens, Škoda Auto and CTU CIIRC. Dual and technical education and related lack of qualified labor force belong among other often discussed topics. The topic was discussed on several workshops between representatives of the Association of SMEs and Technical Craft Unions at Industry and Commerce Chambers in the border neighboring areas.

#### **Short notice on the Bavarian Police equipment**

German/Bavarian police use as the standard weapon the Heckler&Koch P7. Shortly, it should be replaced by the model HK SFP9, since the model P7 is no longer produced. Further, the police use as sub-machine gun the Heckler&Koch MP5 and the gun Heckler&Koch G3 which is only used for killing larger animals. The Bavarian police surveys the use of tasers.

A working group was established, the managing center is in Regensburg. From mid-2018, for a one-year trial period 13 special police troops in Bavaria have been equipped with tasers.

#### **Enforce Tac Exhibition Fair**

During the Enforce Tac, the international trade fair for command, control and operational equipment used by security agencies, held 2019 in Nuremberg, visitors will be presented with innovations in the areas of management and resources, police equipment, security and tactical solutions. The German Federal Minister of the Interior, Mr. Horst Seehofer took over the patronage over the fair. He, representing the head of the German inner security forces, hopes the fair will be able to provide the members of the German Federal Agency for Technical Relief, the fire brigade and rescue services, but not only to them, but to all those interested, with tools, equipment and solution to be able to protect and maintaining order. The up-to-date and advanced professional equipment and safety gear shall ensure the security forces to perform the duties well and only then will remain safe in the vast majority of situations, if not all of them, and return from call-outs unscathed. Looking back, the Enforce Tac of 2018 once again brought together suppliers of equipment for law enforcement and representatives of public agencies from all around the world. Its seventh edition attracted 243 exhibitors and more than 3,500 trade visitors and participants to the European Police Trainer Conference at the Exhibition Centre Nuremberg. 112 exhibitors came

from Germany, 131 from other countries. 50 per cent of visitors came from the Police branch, 25 per cent from the German or other armed forces and 7 per cent from the Custom institutions.

Key figures for Enforce Tac 2018 comprise: 92 per cent of the exhibitors were able to reach their most important target groups during Enforce Tac; 91 per cent of the exhibitors were satisfied with their participation; 94 % of the exhibitors established new business relations; 99 per cent of the visitors were satisfied with the information and contact opportunities on the stands!

In 2018, 11 Czech companies, incl. Meopta, ProAmmo Central Europe or 4M Systems were among exhibitors on the fair. Some of the companies participated with the support of the CzechTrade agency. That was by far the most than from any other country from the Central Europe, apart of Germany.

During the fair, the results of the hard job of security experts from the police, judiciary, border protection, customs, military police and armed forces demands the latest security equipment and arrest, interception and overpowering techniques to ensure the best possible protection of operational forces against fatal injuries will be presented. Besides guns, ballistic accessories, optronics and tactical equipment, the exhibitors at Enforce Tac therefore present operational clothing such as bullet-proof vests, stab-proof vests, body protection, face protection, shields and helmets.

The European Policetrainer Conference also offers ample opportunities for exchanging views with experts and confidential talks at the Enforce Tac International Exhibition & Conference.

The PID, Police Instructors in Germany, German Police High School and Bayerisches Laserzentrum belong to the conference partners. The fair facilities in Nurnberg are home to other high profile security and safety events, such as it-sa, perimeter protection or U.T.SEC.

More information about the Enforce Tac can be found under [www.enforcetac.com](http://www.enforcetac.com).

*Jan Kreuter  
Consulate General of the Czech Republic  
in Munich*



# One billion was just the first step

Explosia, the explosives manufacturer based in Pardubice, reached a turnover of one billion Czech crowns in 2017 for the first time in its modern history. The output of fully combustible propellant charges, which has thus far been destined beyond the borders of the Czech Republic, contributed a great deal to this achievement. However, Explosia declares that it has definitely not reached the limit of its capabilities, and it intends to take advantage of the armament boom of armies that has recently been in full swing.



Explosia is currently manufacturing the second generation of modular propellant charges under the name 155mm BMCS (Bi-Modular Charge System). The first generation was successfully introduced in the Army of the Slovak Republic in 2002-2003. The second generation has been despatched to NATO member armies in the course of 2014-2018. It was also thanks to this fact that Explosia exceeded CZK one billion in turnover, to which the construction of a centre for the development, research and modernisation of manufacture of combustible ammunition parts worth CZK one hundred million also contributed. Thus, the wholly state-owned joint-stock company can additionally proudly claim that it is part of a limited group of global manufacturers that are capable of producing fully combustible propellant charges for 155mm gun-howitzers with 39, 45 and, in particular, 52 calibre barrel lengths.

Fully combustible modules are propellant charges intended for gun-howitzers, the purpose of which is, in most cases, indirect fire at area targets. The number of modules that will be used depends on the distance at which projectiles are to be fired. In the past,

remaining shell casing is removed.

In developing and manufacturing BMCS, Explosia closely collaborates with manufacturers of both ammunition (ZVS Holding) and entire weapon systems (Konštrukta Defence) in such a way to meet user requirements to the greatest possible extent. The primary advantages of the currently produced modular propellant charges include the actual fully combustible case, which is water-resistant and considerate to the barrel as well. The operating temperatures range from -50 to +63 degrees Celsius. Loading is possible both manually and automatically, and the modules are in compliance with the JBMoU, the so-called ballistic memorandum. Together with its Research Institute of Industrial Chemistry, Explosia is currently working on packaging and logistics improvements, and new packaging for BMCSs and new shipping and storage containers should be made available in the future.

The development of modern weapon systems also brings great challenges in developing appropriate ammunition systems. Demands are rising for the accuracy, efficiency and rate of fire. Modern self-propelled 155 mm howitzers are no exception in this re-

metal shell casings, which accounted for a not insignificant portion of the unusable weight, were used for powder charges. Thus, the fully combustible system not only enables utilising the total weight to supply energy for the shot, but the chamber can now also be loaded immediately with another projectile after the shot has been fired instead of waiting until the

spect, and it is here that Explosia can utilise the abilities, knowledge and experience of its experts. The Company aims to negotiate an agreement to sell its products, for example, to Asia and to the Middle East but, in particular, to NATO countries. Breaking into the domestic market is also a significant goal. Should the Army of the Czech Republic select new weapons for its future needs, BCMS can be adjusted in order to be fully compatible. Selecting a Czech company which, in addition, is owned by the state would not only support the Czech defence industry, but it would also enable representatives of the Defence Standardisation, Codification and Government Quality Assurance Authority to directly inspect the quality.

Explosia seems to be fully prepared to not only execute orders for foreign armies, but also for the Czech Army. It is ready to invest considerable resources in modernising the actual development and production of fully combustible modules. If we are now amid the booming demand for large-calibre ammunition, primarily of 155mm calibre, we need to exploit it to the fullest, as we may have to wait several decades for a similar opportunity.







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# Simple, Light and Surprisingly Effective – the Multifunctional RPG-75-MP

 **ZEVETA AMMUNITION a.s.**


**ZEVETA AMMUNITION a.s.** is, as a traditional producer of ammunition and pyrotechnic products, constantly developing new products and innovating the new ones. With respect to increasing danger of terroristic attacks has been innovated in ZEVETA AMMUNITION a.s. a hand reactive anti-tank grenade RPG-75 and, therefore, the assortment of light, but efficient

instruments for counter-terrorist actions regarding 68 mm RTG and RPG-75-MP has been extended. The man-portable, recoilless user-friendly and simple weapon RPG-75-MP combines target-area effects of a shaped charge and thermobaric ammunition in a single 68mm grenade. The weapon is telescopic, its transport length being 630 mm; it is 890 mm long when deployed and weighs just 3.6 kg. As its grenade hits the target, it produces both a shaped charge jet and thermobaric effects. The shaped charge jet of the 68mm grenade can penetrate armour the thickness of which is up to 150 mm. The thermobaric effect results from the detonation of a thermobaric explosive which gives a substantially more powerful end effect than a standard ex-

plosive. The thermobaric explosive produces a much higher pressure peak than a standard one and its explosion also lasts longer, in the order of milliseconds. The incendiary and blinding effect is enhanced as well, as the detonation of the thermobaric explosive generates a fireball which can maintain a broad "hot zone" for several tens of milliseconds. As mentioned above, the RPG-75-MP grenade also includes a shaped charge capable of burning through up to 150 mm of armour. The RPG-75-MP will certainly find its use not only in its primary capacity, i.e. against tanks, infantry fighting vehicles and other armour, but also thanks to its thermobaric capability – against lightly armoured or soft-skinned vehicles, buildings, pillboxes etc.



**ZEVETA Bojkovice a.s.** is one of the most significant Czech companies in the defence and security industry with more than 80 years of tradition. It was founded in 1936 as an ammunition factory. From the very beginning, its production has been focused on pyrotechnic and ammunition production for both military and civilian applications.

The manufacturing program in the field of special production of the company falls under ZEVETA AMMUNITION a.s., which has its own development and design capacities for the development of all kinds of pyrotechnic compositions and the design development of pyrotechnic products and ammunition.

The focus of ZEVETA AMMUNITION a.s. can be defined as the development and production of various kinds of pyrotechnic products and ammunition of military and civilian purposes, extensive testing of pyrotechnic products pursuant to applicable EU legislation and, last but not least, environmentally-friendly disposal and disassembly of ammunition.

#### SMOKE PROTECTION PROGRAM FOR COMBAT VEHICLES

The DGO-1 and DGO-3 smoke grenades are designed for rapid protection of tanks, armoured vehicles, mobile and stationary objects of special importance against high-precision targeting weapons and against reconnaissance fire systems that use visible and infrared electromagnetic radiation under all conditions of all seasons of the year in the temperate climate zone. The DGO-1 smoke grenade is already fully established and successfully used in the conditions of the Armed Forces of the Czech Republic. Using the knowledge of the application of these grenades and their modernization based on new modern trends, new types of DGO-1 were developed – type 2



and 3, which have been successfully used abroad, and type 4, which was implemented and supplied to the Armed Forces of the Slovak Republic.

#### AIRCRAFT PROTECTION PROGRAM

Countermeasure – FLARE type M206 CZ, MJU 7A/B CZ and PPI-26 IV CS are designed to create a decoy for a flying anti-aircraft missile with an infrared homing system. The cartridge consists of an aluminium case of square, rectangular or circular cross-section. The case contains an integrated pyrotechnic generator of the required wavelength and an electric priming screw. The M-206 CZ decoy is used, for example, to protect helicopters deployed in Afghanistan.

#### MEANS OF PERSONAL DEFENCE AND PROTECTION

The URG-86 universal hand grenade is designed to destroy the live force of the enemy. The controlled disintegration of the grenade body ensures an enhanced shattering effect. The universal hand grenade is fitted with an igniter that, by switching a lever, allows the selection



between time and impact function with mask safety and self-destruction.

Besides these established hand grenades, ZEVETA AMMUNITION is finishing the development of new types of hand thermo-baric grenades and smoke hand grenades, which will complement the portfolio of this personal defence and protection equipment.

P-1, P-2 and ZV-6 – anti-riot grenade with a lever or friction igniter form a complete product ready for immediate use. It is an upgraded product for immediate use during operative interventions of police and armed forces.

After the grenade is thrown, the igniter activates the primer. The primer blast ignites the pyrotechnic delay element that, in 2.5 seconds, activates the charge itself and spreads mini charges with individual blasts of 130 to 160 decibels and, in the case of P-2, tear gas. The anti-riot grenades are continually upgraded based on customer requirements and modified as single or multiple-blast products with







a sound-flash or tear gas component to meet the user conditions.

### **SIGNALLING AND SMOKE MEANS**

SN-26,5 – Flare cartridges are designed as pyrotechnic means for shooting from a flare gun. The flare cartridges themselves are designed to create a light or sound effect. Flare cartridges can be single-flare or multi-flare with different light colours. DA-25, VS-4 a PS-25 – Pyrotechnic means for signalling and communication. The DA-25 smoke grenade, once initiated by the appropriate igniter, creates a coloured smoke cloud. The VS-4 fired light source, after initiation, shoots several signalling flares that burn with a given colour for a short time. The PS-25 ground light source, after initiation, creates a light source that burns with the respective colour.

DG-50 – Smoke hand grenades are designed as compact products for immediate use and produced in several colours. The grenades are designed for signalling by means of a coloured smoke. When the smoke hand grenade is thrown, after a defined delay, the lever igniter ignites the smoke pyrotechnic composition and creates a smoke screen.

### **Other products**

One of the new products of ZEVETA AMMUNITION is the DN-1 detonation cartridge. This product was developed with the support of the Ministry of Industry and Trade of the Czech Republic. It is an easy-to-handle tool with a size of 40x65 mm designed to destroy unexploded ordnance and booby traps. The destruction is carried out by a directed explosion of the cartridge, which is placed on a simple carrier. The carrier enables optimized setting and orientation towards the tar-

get object without having to touch or handle the target object.

The ZEVETA AMMUNITION portfolio also includes other modern products of the defence and security industry, such as: extinguishing aerosol generators, initiators and igniters, priming screws and other pyrotechnic

products.

In terms of new directions of development and extension of the ZEVETA AMMUNITION a.s. product range, the company is currently working on new production of primary pyrotechnic initiating compositions.

By launching new production of primary explosives and initiators, ZEVETA AMMUNITION a.s. achieves important manufacturing self-sufficiency and many of its products become independent on external production. In particular, ZEVETA gains new development potential in designing and upgrading other types of initiators for upcoming projects. Examples include the production of new front igniters for all upgraded types of RPG-75 or the development of a new igniter for hand grenades.

Achieving safe production of primary explosives and initiators puts ZEVETA among the few manufacturing companies that

are truly able to safely handle production processes and procedures.

For the production of initiators, a number of primary explosives are being manufactured, which are further processed into mixtures with other substances in order to achieve the best working capabilities and the safest possible products. The resulting mixtures are immediately incorporated into the follow-up assemblies, such as fuses, primers and detonators. This immediate processing also increases safety by avoiding the transport of explosive mixtures out of the production building. The whole manufacturing process takes place in one building and only the final products come out.

In the production itself, emphasis is placed on safety, individual steps of the production are technologically resolved so that any risks associated with the production of sensitive explosives are minimized or entirely eliminated to achieve the highest possible level of safety and work simplicity. For the initial phase of this project, the production of primary explosives is prepared in discontinuous (i.e. intermittent) mode, where the production process is split into separate subsequent parts to achieve a higher level of occupational safety. This division reduces the number of workers present and also reduces the volume of explosives in the production process.

[www.zeveta.cz](http://www.zeveta.cz)







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# TATRA MILITARY VEHICLES



# Why is “Latin America Aerospace and Defense Fair” important for our businesses and security interests



The “Latin America Aerospace and Defense Fair” (LAAD), is the biggest and the most important trade fair for defense and security in Latin America. It is held biennially and it gathers international and Brazilian companies specialized in providing equipment and services for the armed forces, special forces, security services, consultants and government agencies. In 2017 LAAD official delegations reached the number of 183 while being from 85 countries.

During 12<sup>th</sup> edition of this fair in its traditional venue Rio de Janeiro more than 450 exhibitors are expected to participate in April 2019. There will be more than 600 brands on exhibit at the event, offering solutions in areas such as aeronautical engineering; naval engineering; personal and tactical equipment; weapons and ammunition; optics and optronics; consulting, training, and services; cyber defense and cyber security; counterterrorism; transmission, communication, and positioning; salvage, rescue, and emergency services and equipment; access control and monitoring; criminal and forensic investigation; and vehicles, among others. In total, more than 40,000 qualified professionals are expected to attend the

event. According to expo organizers, 195 official delegates from 85 countries, including defense ministers and senior military officials will attend meetings with corporate exhibitors, as well as bilateral gatherings with Brazilian officials.

All Czech enterprises interested in participating in LAAD count with the assistance from the part of our economic diplomacy. Since 2014 the Ministry of Foreign Affairs of the Czech Republic developed a new methodology for economic diplomacy projects. Under the abbreviation PROPED these projects coordinated by the MFA joined skills, finances and organization capacity of several Ministries included the Ministry of Defense. It facilitates more straightforward and more efficient way of running economic diplomacy projects and it is aimed directly to support our companies in their export ambitions.

In “Latin America Aerospace and Defense Fair” 2017 AERO VODOCHODY, Oritest, EGO Zlín, ARESET, ECOPROTECT, ZLIN AIRCRAFT, Tatra, Excalibur, Aquazone, Let Kunovice and other Czech enterprises participated. During oncoming LAAD (from 2<sup>nd</sup> to 5<sup>th</sup> April

2019) participation of Czech expositors will be supported by Economic Diplomacy Project (PROPED) coordinated by the Ministry of Foreign Affairs, supported by the Ministry of Defense and executed by our Embassy in Brasilia.

It is well known that the principal LAAD is held biennially in odd years. But there is also a complementary event held during even years: LAAD Security in Sao Paulo. It is aimed on corporative security and it gathers manufacturers and suppliers from different sectors of operation concerning authentication, Access Control and Surveillance, Consultancy, Training and Services, Criminal Forensics, Cyber Security, Disaster Prevention and Response, Emergencies and Rescue and Homeland Security.

It is also necessary to mention EXPOSEC International Security Fair which is held in Sao Paulo. In 2016 the participation of Czech enterprises was supported by PROPED and enterprise like Jablotron, Tomst and Česká zbrojovka, a.s. took part.

Concerning the size, economic power and stabilizing influence of Brazil in Latin America and also on global level, it is important for the Czech Republic to maintain a meaningful cooperation with Brazil, especially in the area of common global security and peacekeeping. Brazil, as a founding member of the United Nations, is historically committed to the peaceful settlement of disputes, participating in peacekeeping operations is a natural extension of its international responsibilities. Under article 4 of the Federal Constitution, among the principles governing Brazil's international relations are the promotion of peace, the peaceful settlement of conflicts and the cooperation among nations for the progress of humanity. Brazil has acted in more than 50 peacekeeping operations and similar missions, having contributed with more than 33,000 military officials, police officers and civilians. It currently has military officers and observers in several peacekeeping operations in different parts of world.



Defense cooperation between the Czech Republic and Brazil is continuously evolving since 2009 when the Chief of General Staff of the Czech Army met his Brazilian counterpart. Important point for further development of the two countries' relations was a visit of the Czech minister of defense to Brazil in April 2015 and subsequent opening of Defense Attaché Office (DAO) in Brasilia in August of the same year. Two years later agreement between both countries on co-operation in defense was ratified. Areas of future cooperation include cyber defense and exchange of lessons learned in military operations abroad.

Deputy Minister of Defense of the Czech Republic Tomáš Kuchta visited LAAD 2017. Chief of the General Staff General Josef Bečvář had talks with senior Brazilian military officials during his visit to Brazil in March 2018. The aim of the visit was to reinforce military cooperation between the two countries and to discuss measures to promote and boost joint defense industry co-operation.

The Czech defense industry represents one of the basic cornerstones of the security structure of the state. The defense, security and economic benefit for the state are indisputable. If correctly managed, stimulated and systematically developed in line with the political, security and economic interests of the state, it will represent the industrial, research and scientific base while ensuring the strategic and security supplies and service required for national defense, as well as being integral from foreign policy, socio-economic and technological perspective.

Thus, it is necessary to maintain the current globally competitive capacities of the Czech defense industry and ensure its development in areas which are essential. Meanwhile, it is necessary to ensure strategic partnerships with close political partners, enabling the Czech defense industry to remain in a position to augment the financial and technological resources. Therefore, in order for Czech business corporations to reach the necessary production level in the long-term run, they should operate successfully on foreign markets.

The political and the economic diplomacy of the Czech Republic nowadays are closer and more connected to each other than ever. We are aware that opening door to foreign markets for our defense industry and to support its participation in important international fairs like LAAD, it not only has

economic importance but it also helps our defense industry to keep the pace with the most modern trends and to develop strategic contacts. As far as Brasil is concerned, it is really important strategic partner because of its size, traditional regional influence and well-balanced security policy.

The successful operation on foreign markets is the goal which requires cooperation of many "players", it requires close cooperation of government institutions - like the Ministry of Foreign Affairs and the Ministry of Defense - private business, research and science institutions. The economic diplomacy of the Ministry of Foreign Affairs is aware of this complexity and it offers increasing help and assistance to enterprises from the area of defense industry to take part in important international events, like "Latin America Aerospace and Defense Fair". We expect that 12<sup>th</sup> edition of LAAD in April 2019 will be the most successful ever. As mentioned above, the Embassy of the Czech Republic in Brasilia designed a special project of economic diplomacy to support participation of Czech enterprises by a presentation in Brasilia for all representatives of Czech enterprises already present in Brazil in LAAD in Rio de Janeiro and also it will be a low-cost opportunity for smaller companies which will not intend to participate in LAAD. We expect that this "Taylor-made" strategy will suite to Czech companies of all sizes interested in presenting their products in Brazil.

*Written by: Team of The Embassy of the Czech Republic in Brasilia and the Consulate General of the Czech Republic in Sao Paulo*





# M20 COMMUNICATION HEADSET

The MESIT (a member of OMNIPOL group) has been a leading contractor of high-quality components, advanced systems and extensive technological assemblies for more than 65 years. The MESIT has also actively participated for many years in a wide range of projects for worldwide defence community supplying the ground and air forces with sophisticated communication systems.



The branch of our military tactical communication systems is based on own design, development and production of Tactical Radio Communication Systems, Vehicle Intercom Systems, Battlefield Announcement Systems, Radio Accessories and Personal Headsets. Since we introduced our own VHF/UHF transceiver, intercom system as well as the first personal headset primary used within the aircrafts, we have been subsequently produced several communication systems generations mainly intended for the ground military applications up to state of the art DICOM RF40 Tactical Radio System, VICM 250 COMPACT Intercom System or M10/M20 Personal Headset. Based on this experience the company has achieved the rank of the world's most advanced manufacturers with thousands of units exported all over the world during recent years.

Following on combat proven M10 Personal Headset mainly intended for military tracked or wheeled vehicles including heavily armoured personnel carriers and main battle tanks the next-generation lightweight M20 cutting-edge communication and hearing protection headset is an ideal solution for all tactical warfighting environments, be it in the mounted or dismounted role. It represents the newest addition to the company's line

of soldier system products to be seamlessly integrated with a broad range of protective helmets including mandibles and face visors via rail mount, headband or under the helmet fitting options depending on user preference and headborne equipment.

The M20, internally controlled by upgradeable software, is suitable for the users exposed to peak impulse and steady state noise prevalent e.g. in military or police operations. It gives optimum hearing protection along with the ability to hear the surrounding environment provided by two forward-facing and two rear-facing Talk-Through microphones enabling enhanced accurate directional sound perception (high-fidelity full 360° situational awareness) and improved command and control. Harmful sounds are compressed down to a safe level while low-level sounds are amplified. Advanced Active Noise Reduction technology mitigates low-frequency, steady-state noise generated by vehicle platforms, to protect hearing, reduce cognitive burden and improve communication and speech intelligibility with functionality retained in the dismounted environment.

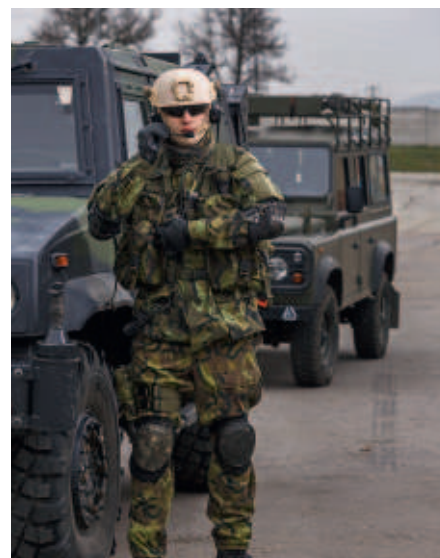
The M20 is interoperable with two-way or tactical radios and communication systems onboard vehicle platforms. It enables connectivity to Chemical, Biological, Radiological & Nuclear Microphone adaptors. The M20 can be equipped with the integrated short-range wireless technology to ensure communications are maintained in the event of catastrophic tactical communications failure. The headset is powered by two AAA batteries with a sophisticated power management enabling configurable automatic shut-off and more than 200-hour talk time – event of electronic failure or battery

depletion, external communications will continue to function.

The M20 features narrow profile earcups containing all electronics, comfortable ear cushions and easily adjustable and replaceable noise-cancelling flexible boom microphone, which can be removed for basic hearing protection. Three integrated control buttons enable intuitive ON/OFF/Headset Settings, Talk-Through volume adjustment etc. Other replaceable component is an easy-accessible external battery door, optional rugged napebands and nylon helmet straps or headbands. It is also available with a range of Push-To-Talk boxes/switches enabling radio and intercom keying located on the earpiece or inline designed to fit comfortably in the user's hand.

The M20 is an innovative communication and hearing protection platform with individual customization, upgradeable performance that is going to be commercially available in the first quarter of 2019.

*Dipl. Eng. Tomáš Mazúrek, Ph.D., MBA  
Programme Director Defence*





# Hybrid Interconnection

Signal, Power, Coax, Data,  
Fiber Optics etc.

## Connectors

Circular MIL-DTL-38999/EN3645  
Amphenol LJT, JT, TV, SJT or BL

Shells - Composite, Stainless-Steel,  
Marine Bronze, Aluminium plated  
with Ni, Cd, Zn-Ni

Receptacles with crimp and PCB contacts  
Stand-off and reduced flanges

Cable plugs with wide range of rear  
accessory or integrated EMI backshell

Rectangular design pursuant EN4165  
Amphenol SIM



## Contacts

- 1 Signal AWG23/22/20 (M39029/56&58)
- 2 Power AWG16/12/8 up to 60A, including reduced crimp barrel
- 3 Thermocouple contacts Alumel/Chromel etc. AWG22/20 (M39029/87&88)
- 4 Shielded Coax AWG16/12/8 (M39029/76&77, 28&75, 59&60)
- 5 Coax with Matched Impedance 50 Ohm up to 3GHz, AWG12 (M39029/102&103)
- 6 Coax 50 Ohm for UHF up to 40GHz, AWG8
- 7 Coax 75 Ohm for HDTV systems HD-SDI/3G-SDI, AWG12/8
- 8 Triax 50/75 Ohm for improved shielding effectiveness, AWG12/8
- 9 Concentric Twinax (Triax) for data cable 70...120 Ohm, AWG12/8 (M39029/90&91)
- 10 Differential Twinax for data cable 100/150 Ohm, AWG8
- 11 Quadrax for 1 quad or 2 data pairs e.g. Ethernet up to 1Gb, 90/100/150 Ohm, AWG8
- 12 Octonet for 4 data pairs for Ethernet up to 1Gb, AWG8
- 13 Quadrax and Octonet with split pairs for 10Gb Ethernet, AWG8
- 14 Fiber Optic Termini AWG16/20 for MM/SM fiber including Expanded Beam version AWG16

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# VERA-NG SIMULATOR



## VERA-NG Training Simulator - training tool for the Passive ESM Tracker

The training simulator is a military reconnaissance tool, which provides training of passive tracking and electronic intelligence systems. The simulator system consists of the VERA-NG console as a workplace for operators (trainees), a simulator console as a workplace for instructors (trainers), a central processing station and receiving universal military module.

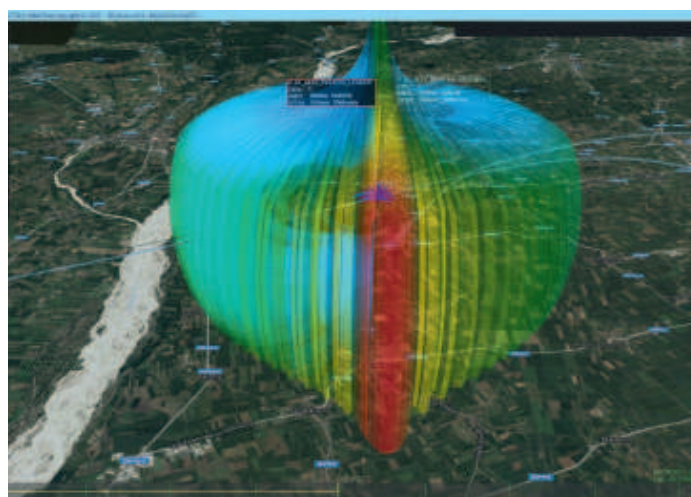
The training simulator significantly decreases the time needed for new users to obtain needed experience without affecting the performance of the operational system. The training can be carried out using data from prepared scenarios or data from one receiving station. Off-line data from another VERA-NG system can also be replayed.

ERA can deliver various scenarios reflecting the following themes or ERA experts can create any scenario on demand to create situations which might be extremely rare or almost impossible to find in the real environment:

**Navigation flights**  
**Dog fights**  
**AWACS monitoring**  
**Air support JTAC**  
**Area mapping**  
**Border crossing**

### BENEFITS:

- ✓ One receiving station to analyze real signals for advanced training
- ✓ Any type of battlefield scenario (airspace, ground or navy)
- ✓ No need to deploy the entire system with four site stations
- ✓ Developed in cooperation with the Department of Radiolocation at the University of Defence in Brno



VERA-NG addresses critical elements in today's military and security operations by providing the most advanced and state-of-the-art Passive Surveillance System designed for detection, location, identification and tracking of air, ground and naval targets. VERA-NG is Passive ESM (Electronic Support Measures) Tracking (PET) technology, which uses advanced techniques to conduct cross-border long-term and long-range surveillance without alerting neighbours. It effectively "sees without being seen".

The system's design is fully deployable in all three versions ERA offers to military bodies all over the world. The sensors could be placed either on masts of two different heights (12 and 25 metres) or light weighted tripods or quadpods. They can be easily transported either in the special lorries of different brands as an integral part of the delivery or in general purpose

vehicles. It has been delivered in a "roll-on/roll-off" configuration including a fully configured mobile command centre containing all the processing, analysis and observation equipment. This passive system emits zero electromagnetic energy making it invisible to anti-radar missile systems. Traditional active surveillance solutions, while effective at detecting, locating and tracking targets, are susceptible to detection and either jamming or even destruction due to their active nature. Moreover, traditional radars are unable to detect all targets, particularly targets based on low observable technology and electronic countermeasures to trick or deceive traditional radar. There has consequently been a long-term need for a covert, effective, mobile, solution to the surveillance requirement. The above mentioned benefits make VERA-NG to be the last line of defence if primary radars are destroyed in a conflict situation.



# Training & Simulation



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# ReTWis 5



## The Latest Version of Radar Detecting People Behind Solid Obstacles

RETIA Company from Pardubice is a leading Czech manufacturer of radar technology and special electronics, which is at the forefront of technological development in its field, even on a global scale. Among its newest and most interesting products is a small portable radar, ReTWis 5.

RETIA introduced the first version of the small portable radar ReTWis (RETIA Through-Wall Imaging System), which is able to track people's activities behind solid obstacles, as early as 2008. However, the designers continued to develop the concept and today the ReTWis 5 is available. The radar is able to detect live beings behind the wall, both in motion and without moving.

The ReTWis 5 radar uses the ultra-broad-band (UWB) radar technology. UWB technology is specific with its high resolution ability, difficult to be disturbed and virtually does not interfere with other radio systems.

Another advantage is an easy signal breakthrough, through the wall or through other non-metallic barriers. The visual outputs of the hidden objects behind the walls are displayed on the basis of impulses processing which are emitted from them. The signal processing of the radar ReTWis 5 is optimized to detect small changes caused by human or animal movement, allowing the location of, for example, a person just by breathing.

The use of ReTWis 5 is versatile – it can be used, for example, by security and armed forces. It can provide the police or soldiers with a situational overview of the number and location of people in a room or in a building before any intervention; giving them tactical superiority while reducing the risk of their own losses and negative consequences for civilians. ReTWis 5 can be also used for long-term, hidden surveillance of certain areas, which is enhanced by the possibility of remote transmission of signal and data on the display units. Moreover, the radar signal is difficult to detect thanks to the Step Frequency Continuous Wave (SFCW) technology. The radar is also very useful, for example, to control the presence of hidden people in trucks, and it is not necessary to physically open the truck's semitrailers while using it. Thanks to the Stand-off capability,

it is possible to create an improvised transit control post using the ReTWis 5 radar.

The visual output from the ReTWis 5 radar can be displayed in 2D or 3D with a range of up to 40 m and can be positioned up to 20 m from the obstacle behind which searched persons become visible. The radar is a highly mobile device and with its weight of 3.25 kg it is easily portable and quick to use. In addition to the manual manipulation, the radar construction also allows the installation of a telescopic rod, on a tripod or on special remote-controlled reconnaissance robots. The radar construction is water and dust resistant and complies with the IP 67 standards. It will be possible to transfer the radar output remotely to various display and data devices, so that is not will be a problem to connect a computer, notebook, smartphone or tablet using LAN or Wi-Fi connection. The software and hardware equipment allows up to two hours of recording and then it is possible to work with these records, for example to transfer them to external devices for their playback or further processing. The Radar is ready for use only 20 seconds after it is switched on and with its powerful batteries it is able to operate continuously for 5 hours. An external charger is also available as an option. ReTWis 5 is also resistant to interference, so several radars can be used at the same time to monitor the same space.

The features and capabilities of the radar ReTWis 5 are at the top in their field due to the high level of development and production capabilities of the RETIA Company, based in Pardubice. RETIA has been building its position and its abilities for a long time; this year it is celebrating its 25<sup>th</sup> anniversary of the company's establishment. In 1993 it was founded by engineers from the former Tesla from Pardubice. During its existence, RETIA has

focused on the development, manufacture and modernization of radars, anti-aircraft rocket systems, electronic command and control systems, recording systems, UWB locating devices and communication systems. These products are supplied to the Army of the Czech Republic, as well as to NATO allied armies, directly to the North Atlantic Alliance and to other military and civilian customers in the Czech Republic and in more than 40 countries.

Last year, for example, RETIA completed a long-term contract for radar sensors ReVISOR for the Czech Army, or completed deliveries for the unique system Alliance Ground Surveillance (AGS) of North Atlantic Alliance, which serves to monitor the ground situation in a designated area and to locate land and sea targets. RETIA also cooperates with the Israeli company ELTA on the current radar project for the Czech Army – MADR. In the past, RETIA upgraded for the Czech army, for example, the anti-aircraft missile systems 2K12 KUB or developed, manufactured and ensured the implementation of the fire command and control system RACCOS.





**RetTRACK**



**ReVISOR**



**C2 MODULE**



**ReTWis**



**ReDat RECORDING SYSTEMS**



**SURN CZ MODERNIZATION**

**REtIA**

retia.cz



# IDEF 2019, 14<sup>th</sup> International Defence Industry Fair



Turkey's February 2018 military offensive against a Kurdish militia in Syria's Afrin enclave showcased the growing prowess of the Turkish armaments industry. Almost all of the armored carriers operating in Afrin were domestically produced. In recent years Turkey has dramatically reduced country's dependency on imported arms and invested enormous effort and finance to defense industry. To present new Turkish defense industry products host Turkey every two years the international defence industry fair IDEF. From the point of the Czech Republic the Turkish defense industry is seen as an interesting partner not only for Czech Army but for Czech defense industry at all. Turkey's defense industry has changed significantly in less than a decade as Turkey has become more involved in co-production, co-development projects, which have also brought along export opportunities.

It has seen rapid growth over the last 10 years and reached the transition point from prototypes to serial production. As of late 2017, the total number of ongoing defense projects was close to 600, with 50 new projects starting in 2017. According to Turkish Ministry of Defense, Turkey's defense exports reached \$1.8 billion in

2017. The total value of orders received in 2017, including civilian aviation products, was close to \$8 billion. The United States, with a 34 % share, is the number one export market for Turkey, followed by the European Union. According to statistic data, Turkey's total defense imports reached \$1.54 billion in 2017 and U.S. companies received 35 % of the total market share. According to the Stockholm International Peace Research Institute

(SIPRI), Turkey increased its military spending by 46 % between 2008 and 2017. At \$18.2 billion, it is the 15<sup>th</sup> largest military spender globally. SIPRI lists Turkey as the world's 6<sup>th</sup> largest defense importer after India, Saudi Arabia, UAE, China and Algeria. The Turkish defense industry has an aggressive goal to reach \$25 billion by 2023. The top export items in 2017 were aircraft and helicopter parts, engines, parts of tanks and other armored land vehicles, ammunition for other weapons, turbojets for civilian aircraft, hunting rifles, and receiver/transmitter equipment for military use.

Concretely in 2018 Turkish Ministry of Defense (MOD) budget is around \$10.8 billion (\$/TL at 4.4). Half of this budget is allocated to spending on procurement of goods and services, including modernization programs. This does not include spending by the Ministry of Interior's Gendarmerie, the Coast Guard, defense procurements funded by the Turkish Treasury and the Undersecretariat for Defense Industry Support Fund. Along with MOD spending, the proposed 2018 budget for the Gendarmerie is \$3 billion, for the Coast Guard \$155 million, and for the National Police \$6.3.

Turkey is aiming to improve its manufacturing capabilities and develop a self-





sufficient national defense by 2023, the centennial of the Turkish Republic. To attain this goal, Turkey seeks to maximize local manufacturing capabilities through R&D and technology transfer. Large-scale systems integrator companies along with SMEs that develop subsystems for systems integrators are playing a key role in developing indigenous solutions for the defense industry. According to official figures, off-the-shelf direct imports have fallen from 98 % to 12 % since the 1990s and local production in Turkish Armed Forces procurements has increased from 25 % to 68 % since 2003.

Conditions in the defense industry are determined by politically and governmentally heavily encouraged development of domestic production - Turkey invests considerable money in new "national weapons" projects, domestic production is clearly favored over foreign. In 2017 a total of 55 projects worth \$9.4 billion were evaluated and in addition, three Turkish companies are among the top 100 defence industry companies in the area of global defence and security. The 10<sup>th</sup> Development Plan (2014-2018) calls for a competitive structure of the defence industry, defence system and logistics needs to be met in an integrated and sustainable way by the country's industry based on indigenous design, civilian use of appropriate technologies, increase in the domestic ratio and the share allocated for R&D as well as supporting networks and clustering structures in specific areas of the defence industry. In

keeping with the Development Plan, the 2017-2021 Strategic Plan has identified the aim and targets of the SSB to, "manage by providing an integral approach to ensure the sustainability of the defence industry by developing the capabilities of our country to increase its power in defence and security areas through programs that will enable the sustainability of the defence industry" in order to make "Turkey a global player in the defence and security field with indigenous design and advanced technology capabilities."

#### **The most important Turkish defense companies:**

ASELSAN has become an electronics giant with its original products. TAI has reached the leader position in

the field of aviation, satellite and space in Turkey.

ROKETSAN is the unique missile-rocket systems' designer and producer in Turkey.

HAVELSAN has become the leader of Turkey in the field of software, informatics and system integration.

ISBIR has reached a position to provide generators and alternators to major defence and public projects.

ASPILSAN has gained the ability to develop original battery and battery block products for major defence industry systems.

ALTINAY, OPTIX, FNSS, NUROL, OTOKAR, TUSAS, STM and other.

In the next decade, combat weapons and equipment currently in Turkish Armed Forces inventory will need to be modernized or replaced with systems incorporating new technologies.

Other requirements include: main battle tanks, wheeled armored vehicles, tank transport and rescue vehicles, artillery upgrades, the pedestal mounted Stinger program, army tactical missile system (ATACMS), combat aircraft, airborne early warning aircraft (AEW), search and rescue helicopters, unmanned aerial vehicles (UAVs), submarines, destroyer class ships, fast patrol boats, mine hunter vessels and maritime patrol and surveillance aircraft.

During the first eight months of 2018, foreign trade between the Czech Republic and the Republic of Turkey in the defense industry exceeded more than 10 million EUR. While Czech exports to Turkey at the end of August 2018 exceeded more than





twice total export of the Czech Republic in 2017 and reached approximately 7.2 mil EUR. The Embassy and Consulate General of the Czech Republic in Turkey in this area records growing interest in cooperation on both sides and believes that the well-established trend will continue in the future.

For success in the local market, not only in the defense industry, it is necessary to invest in the time it is dedicated to this market or to a local sales representative with personal contacts in the necessary places. The practice of business agents representing the interests of companies active in the defense sector is quite common here and is worth the success of many companies. The Embassy is aware of this situation and is ready to look for or scrutinize assistance, as well as to assist any interested Czech companies in their dealings with their business partners.

To understand the local environment, it must also be aware of its functioning and regularity. The institution responsible for all purchases in the defense industry is a civilian institution directly subordinate to the President (SSB), which is basically the counterpart of the Armaments and Acquisitions Section at our Defense Ministry. Therefore, the Turkish Ministry of Defense is dependent on the decision of this civilian institution.

However, this sector is promising, especially for Czech small arms handlers, technological subcomponents (electrotechnics, optics), machine tools and heavy machinery production technologies, testing and testing).

Czech defense producers can cooperate with Turkey as a partners or sub-contractors for the production of army automatic assault rifles, rocket systems, battleships, tanks, drones or specialized electronic means. The Turkish market can be perspective from the point of view of Czech entities, for example in the field of anti-chemical and radiation protection devices. Stakeholders can not remain products for rescue systems. In connection with the possible construction of a nuclear power plant, it is necessary to create a safety and rescue system. It is possible to see another chance for the use of Czech companies.

Czech-Turkish defense industry relation is active in last few years. In 2017 Czech defense companies visited IDEF – International Defense Industry Fair in Turkey and

in the same year Turkey became for the first time in the history of Czech IDET in Brno - the guest of honor. Eleven Turkish defense companies and two government institutions represented Turkey at IDET in Brno. Their goal was to strengthen the relationship between Czech and Turkish companies in the defence industry as well as cooperation between the two governments and in the same time to present their defense industry products.

The cooperation between the Czech Republic and Turkey continues in specific projects including machinery for defense industry, smart technologies, weapons and ammunition.

#### **Foreign trade between Turkey and the Czech Republic (in thousands EUR):**

##### **HS code 93: Arms and ammunition; parts and accessories thereof:**

Year	Export	Import	Turnover	Balance
2015	5.013	3.322	8.335	1.691
2016	3.893	2.995	6.889	898
2017	3.245	4.655	7.900	-1.409
1-7/2018	7 . 2 2 6 (184 664 000 CZK)	2 . 9 1 0 (74 438 000 CZK)	1 0 . 1 3 6 (259 102 000 CZK)	4 . 3 1 6 (110 226 000 CZK)

Czech Embassy in Ankara is in close contact with Turkish SSB (Undersecretariat for Defense Industries) to support common NATO and mutual Czech-Turkish projects and activities. During last meeting in October 2018 Czech Ambassador delivered to President of SSB invitation for Turkish defense companies for IDET 2019 in Brno. Turkey expressed interest to participate in defense tenders in the Czech Republic and increase mutual cooperation. In the same time representatives of Czech companies Tatra Trucks a.s., ERA a.s. a Česká zbrojovka a.s. actively participated in "Industrial Cooperation Days in Defense & Aerospace" in Ankara in October 2018.

Turkish president of SSB would like to welcome Czech defense companies during international defence industry fair – IDEF 2019. IDEF 2019 will be held under the management and responsibility of the Turkish Armed Forces Foundation, IDEF 2019, 14<sup>th</sup> International Defence Industry Fair, organized by TÜYAP Fairs and Exhibitions Organizations Inc. on between April 30 - May 3, 2019 at TÜYAP Fair and Congress Center in Büyükçekmece, Istanbul.

TÜYAP prepared for IDEF 2019 12 halls, together 120 000 m<sup>2</sup>.

Previous opening of IDEF 2017 was done by Prime Minister of Republic of Turkey, Binali Yıldırım. IDEF 2017 hosted 818 participant companies and their representatives, 133 delegations and 637 delegation members active in the defense field from 67 countries and 2 international organizations. 1 President, 26 Ministers, 6 Chiefs of General Staff, 17 Deputy Ministers, 5 Deputy Chiefs of Staff, 10 Force Commanders and 14 Undersecretaries and many civil and military procurement authorities was attended the fair including Czech deputy Minister of Defense Mr. Kuchta.

IDEF'17 hosted 820 companies from 50 countries. Our authorities was allocated meeting offices to meet the delegations and participants from national / interna-

tional defense industry institutions during the fair, establishing important commercial connections with them. 2.240 scheduled meetings and 50 signature ceremonies were realized during the fair.

With the intensive attention of visitors, 65,782 domestic and foreign professionals from 116 countries visited the show. Overall, interest in cooperation and foreign defense industry trade between Turkey and the Czech Republic is on both sides and has an increasing tendency. It is important that this opportunity is mutually exploited.

*Jan Ondřejka, The Head of Commercial and Economic section, Consulate General of the Czech Republic in Istanbul*

*Photo by SSB*

**Maintenance / Repair / Overhaul**  
**Modernizations**  
**Simulation technologies**  
**Training**  
**Logistics**





# NCS College 2018 used AURA software for the training

The 4<sup>th</sup> International Codification Courses were held at the University of Defence in Brno under the aegis of its rector in August and September this year, this time entitled “NCS College together”. The courses were organised by the University of Defence together with the National Codification Bureau of the Czech Republic – organizationally, informationally, by lecturing and financially supported by the company AURA, s.r.o. from Brno.



## NCS College together

This year's International NCS College was held with close cooperation with state institutions and private companies, exactly in the spirit of the strategy and tactics of the synergic interconnection of these subjects bound by a contract, with the aim of achievement of an optimal result. The University of Defence ensured the needed academic spaces with the highest possible certification for successful attendants, the National Codification Bureau of the Czech Republic, which operates within the Ministry of De-

fence ensured the indispensable quality and observing the military and codification rules. AURA supplied its own information system for codification MC CATALOGUE that is currently the most used worldwide, within the NATO Codification System it is used in 20 countries already.

Thanks to this collective effort of the state institutions and the private companies the International Codification Courses held in Czechia differentiate from other international courses, performed exclusively by non-private institutions on virtual artificial soft-

ware only simulate real systems common conception, the 100<sup>th</sup> student of the Brno Codification Courses for Managers, Logisticians and Codifiers, which had been attended by students from almost 30 countries of the world in total, was certified this year.

## Focus of the Brno codification courses

The international codification courses held at the University of Defence in Brno are divided into preparation of managers and logisticians concerned with materiel and services codification issues at armed forces



(Courses for Managers and Logisticians) and training of the staff effecting directly the codification processes (Courses for Codifiers). It is not always the case, however attending both courses, especially by students from the countries yet entering the NATO Codification System, is proving very advantageous – first general course and then the specific one. 11 students of the Course for Managers and Logisticians (4 from the private sphere and 7 from state institutions), 9 learners of the Course for Codifiers (4 from the state institutions and 4 private ones) from 9 different countries successfully completed the courses this year. In similar way was conceived also the composition of the lecturing and moderating staff according to “halb um halb” principal – 5 from the University of Defence and the National Codification Bureau of the Czech Republic and 5 from AURA and Allan Webb. The lecturer and moderator of the Course for Managers and Logisticians was excellent former director of the National Codification Bureau of the United Kingdom and former long-time chairman of the National Directors on Codification Allied Committee 135 (AC/135) George Bond. As the students and lecturers, there were officers and civilians from Afghanistan, NATO structures, Saudi Arabia, Scotland, Sweden, the USA and of course from the Czechia sitting next to each other. Keep on like this!

#### Why to go to Czechia to the University of Defence for codification?

In the whole history of the four years of the international codification courses in Brno - first supported by USA and a promise that NCS College would be taken in turns with the NCB College in Battle Creek, later with par-

ticipation of the AC/135 and finally under exclusive coordination of Czechia and considerable foreign lecturers and the Allan Web company, it is proved that a great advantage and attractor for students representing the state and private sector is the lecturing and training by experienced and skilled lecturers in a real codification software. It is currently the most worldwide used information system MC CATALOGUE, developed and supplied by AURA company. The connection of industry and state institutions seems to be optimal also for schooling and training of the codification staff. It is worth noting that also other suppliers of codification software are invited to the NCS College. Academic space, where the codification courses take place and the participation of the National

Codification Bureau of the Czech Republic ensure university certificates with high international value for the students. Brno, Praha and other regions of the Czech Republic where the schooling, training and accompanying course activities take place enter indelibly to the students' minds. The last courses were marked by the students in 7 areas evaluated with 1.17, respectively 1.07 and recommended to co-workers. Some student repeatedly come back to the NCS College in Brno.

We will deal with the NCS College 2020 successfully again and we will prepare next managers, logisticians and codifiers for accomplishing the NATO Codification System!

*By Antonín Svěrák*





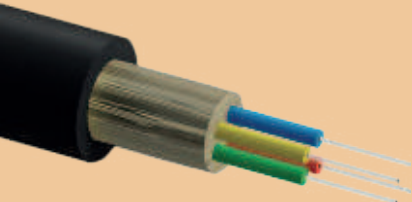


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# No compromises when it comes to life

The philosophy behind the GUMOTEX Rescue Systems could be simply summed up by an old proverb that says "a friend in need is a friend indeed". The products of this brand have been employed in various types of crisis situations where you need to work quickly and accurately and when the users require first-class quality from their equipment. There is a lot at stake – human lives, health, or property. GUMOTEX has helped with protection for more than 25 years.

Hardly anybody places such uncompromising demands on the equipment like the rescuers. It must be practical, withstand extreme conditions, withstand enormous loads; and under all circumstances, it must be one hundred per cent reliable. Add to this, the requirement that all products have to be handled easily, intuitively, and of course quickly. Maximum flexibility along with

tamination showers and boats of this brand all around the world. Some of the tents are catalogued as a means of military at NATO and the company has recently become an approved supplier to the United Nations.

The main objective of GUMOTEX is that these tools perform their functions perfectly and precisely meeting not only the needs of



deployment in difficult to predictable scenarios brings together a cocktail of challenges which only few companies can meet satisfactorily. And a less than perfect result is not possible on this pitch.

The fact that GUMOTEX Rescue Systems is kicking the Premier League, despite the above-mentioned requirements, is evident by the ever-growing interest shown by rescue teams from abroad as well as by prestigious orders on the domestic front. Rescuers, fire brigades and police forces, military units and members of the Red Cross, have all had experiences with its inflatable tents, decon-

the consumers, but also the stringent standards of the teams. And last but not least, the producer does not forget also the ecology. Own development team at the moment actively cooperates directly with the final users and one of the results of this cooperation should be an energy-saving solution for inflatable tents that will satisfy the demand of both the Czech Army and other domestic security services, but also those abroad.

Currently, GUMOTEX Rescue Systems plans to expand its business activities also outside the EU and focus on the real needs of its product final users.



Flood control barriers



Decontamination



Inflatable modular large capacity hall



Inflatable rescue tents



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**modern technology**  
**know-how**  
**quality**  
**references**

**WE HELP YOU HELP OTHERS**

[www.gumotex-rescue-systems.com](http://www.gumotex-rescue-systems.com)

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RESCUE SYSTEMS





15TH INTERNATIONAL  
DEFENCE AND SECURITY  
TECHNOLOGIES FAIR

29. 5. – 1. 6. 2019  
BRNO, CZECH REPUBLIC

## **IDET, PYROS AND ISET 2019: SECURITY FAIRS WILL OPEN NEW OPPORTUNITIES FOR BUSINESS**

Security has become a clear priority these days. At this time of increased risks deriving from new outbreaks of war, terrorist attacks as well as other threats, governments do not hesitate to invest in defense and security technologies. Along with that the importance of the defense industry is growing, which has traditionally a strong position in the Czech Republic. Companies present their new products aimed for security forces at trade fairs, to which the Brno's IDET has belonged since 1993. Next year on the verge of May and June, its fifteenth edition will be held, once again in partnership with the PYROS and ISET fairs, which present fire and safety equipment and services. There is considerable interest in participation already long time before, because both the Ministry of Defense and the Czech Police and Fire Rescue Brigade of the Czech Republic increase their budgets for medium-term purchasing plans.

IDET forms an essential platform for the presentation of the Czech defense and security industry. Just like in previous years, it will offer the exhibiting firms direct contacts with both domestic and international customers. As an exhibition of defense technologies for Central and Eastern Europe, it is regularly attended by the Ministries of Defense of Poland, Hungary, Slovakia and other countries; NATO is usually directly represented with an exhibition stand here, and defense sector delegations come from dozens of countries all around the world. A partner of this trade fair, the Association of Defense and Security Industry of the Czech Republic brings together 110 member companies that are very successful in foreign markets with weapons, security systems and technologies. Already nowadays they export about 80 percent of their products and their application possibilities continue to grow; in fact, sales of armament companies grow globally, and the fastest growth is right in Europe.







The attractiveness of the IDET International Exhibition of Defense and Security Technologies is enhanced by its interconnection with the PYROS International Trade Fair of Fire Fighting Equipment and Services and the ISET International Security Technology and Services Fair. This shamrock of SECURITY FAIRS hence covers with its range of exhibits the entire integrated rescue system, consisting of the army, police and fire brigade. All three components of the Integrated Rescue System work together very closely and often use the same equipment, information technology, communication means, weapons and vehicles. The Brno trade fairs hence give an overview of the entire military and civilian security and above all multiply the possibilities for exhibitors to establish themselves as suppliers for the various components of the integrated rescue system. Recently published acquisition intentions in the medium term open a variety of opportunities for that.

A series of modernization projects have been announced by the **Czech Army**, which in the context of the deteriorating security situation increases the investments into its technical equipment. By 2020, the Czech Republic defense expenditure should rise to 1.4% of GDP. The goal is namely the modernization of ground forces, and the priority objectives include the modernization or replacement of obsolete BMP-2 armored vehicles and a purchase of 50 NATO caliber cannons, which will replace the ending Dana howitzers. The main armament projects of the Army of the Czech Republic in the medium term include also purchases of mobile radiolocators, light multipurpose helicopters, command-staff and radio communication wheeled armored vehicles and special vehicles for the chemical unit. At the same time project named 'Soldier of the 21st Century' continues, the RBS air defense system modernization is under preparation, as well as the acquisition of SHORAD air defense systems, development of a new global data network and others.

The **Fire Rescue Brigade of the Czech Republic** is also preparing an extensive modernization of its individual components virtually in all covered areas. Replacement of firefighting rescue vehicles, equipment and material, as well as investments into information technology and control centers are counted on. The announced purchases also affect the means and material for the protection of property against floods, as well as engineering and other equipment for the elimination of consequences of explosions and other disasters, equipment for detecting and removing the effects of chemical and industrial accidents, and last but not least, equipment for rescue and humanitarian operations.







The **Police of the Czech Republic** in the medium horizon will be purchasing multipurpose helicopters, off-road vehicles, information technology and means of communication. In the pipeline are also modifications of guns and investments into optical apparatuses, vehicle replacements and basic equipment for police officers, as well as purchases of new means of personal protection – helmets and bullet-proof jackets. The ISET 2019 fair, with topic of cyber security, will be an opportunity for a comprehensive presentation of technologies for the protection and safety of life and property.

The whole shamrock of SECURITY FAIRS 2019 will then demonstrate the capabilities of individual components of the security system to face the current threats in case of emergency events in the Czech Republic. Great interest in the exhibits is expected from the public and above all from domestic and international professionals. Moreover, the Brno Exhibition Centre allows presenting the equipment directly in action in a unique outdoor terrain polygon, where attractive demonstrations of various opportunities of utilization take place. The fairs will also feature a traditionally high-quality extensive specialized supporting programme with international conferences and seminars. Brno University of Defense is preparing the CATE (Community – Army – Technology – Environment) conference. Part of the fair is also a prestigious competition for the best innovative IDET Gold exhibits.

During the last edition in 2017, the SECURITY FAIRS were attended by more than 32 thousand visitors from 48 countries, and official army delegations arrived from 17 countries.

[www.idet.eu](http://www.idet.eu)

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# CZ Semi-automatic Variants



Dynamic shooting sports, hobby shooting or security service – these are the most common examples of use for semi-automatic variants of CZ automatic firearms.

Automatic firearms from Česká zbrojovka a.s. belong among the absolute world's best in its class, and the same goes for their strictly semi-automatic variants. The latest product on offer is the CZ BREN 2 MS in .223 Rem. and 7.62x39 cal. It is characterized by exceptional durability and lifetime, superb accuracy even in rapid fire, ease of handling and stripping for basic maintenance, reliable function with all types of ammunition, abundance of basic accessories and a very favour-

able price-performance ratio. This series simply fulfils the dreams of fans of service firearms.

## **CZ BREN 2 MS .223 REM**

This is the strictly semi-automatic variant of the CZ BREN 2 assault rifle, which is a collaboration with other world markets who required civilian versions of our popular assault rifle.

The CZ BREN 2 weapon system is one of the most sophisticated on the global market. Its advantages include simple design, extreme reliability, high accuracy, low weight, excellent ergonomics and ambidextrous or easy to adjust controls. These properties are also fully retained in the semi-automatic model in the popular .223 Rem calibre. In comparison with the automatic version, this model does not have the option of short burst fire, while the most significant difference is the independent forend and the absence of mounting rails on the bottom and the sides. This enables users to

customize and fine tune their models to their own preferences.

## **CZ BREN 2 MS 7.62x39**

In this semi-automatic rifle, the superb design properties of the CZ BREN 2 system are combined with the impressive ballistic performance of the 7.62x39 calibre. The result is a powerful, accurate and reliable rifle that has no equal rival.

This strictly semi-automatic model is the clear choice for all users who are enthralled by the advantages offered by the CZ BREN 2 series but find the .223 Rem calibre insufficient. The long MIL-STD-1913 mounting rail at the top holds the folding iron sights, giving users the option to also attach a mounting interface system according to their own requirements and preferences. The original CZ magazines are made of highly durable polymer and have transparent windows on the back of the case. The pistol grip has an interchangeable backstrap to enable easy adjustment of the ergonomics.

# EXCALIBUR ARMY CZECHOSLOVAK GROUP



**EXCALIBUR ARMY**, a part of the **CZECHOSLOVAK GROUP** holding, is a Czech producer and seller of heavy military vehicles, spare parts, weapons, ammunition and other military equipment. It focuses on research and development, production, maintenance, repairs, overhauls and modernization of ground military vehicles and technology.

Its main current projects include Patriot APC, DANA M2 howitzer, RM-70 Vampire and BM-21 MT rocket launchers, AM-50 EX and AM-70 EX bridge layers, and IFV and tank upgrade programs, such as T-72 Scarab.

Patriot 4x4 APC is a modular concept vehicle meeting all NATO standards. Its robust build is based on the durable Tatra chassis. Due to its versatility and modularity, the Patriot is suitable for armed

and security forces, as well as civilian use. The modernization of the DANA M2 wheeled howitzer brings significant upgrades to this proven weapon, bringing it to the standards of modern artillery systems. These include e.g. higher vehicle durability and dynamic properties, improved accuracy and higher engagement speed. The RM-70 Vampire rocket launcher with the tried and tested launching system GRAD 122 mm is designed to perform concentrated fire to eradicate live combat force or armament. The Vampire can be equipped with several types of armoured cabins for biological and chemical protection. Additional ballistics and anti-mine protection can also be installed. The AM-50 EX and AM-70 EX carry a bridge-laying system mounted on the Tatra Force chassis, meeting the MLC-50 and MLC-70 standards and is capable of bridging an obstacle with the length

of 10 to 12.5 meters and a depth of up to 6 metres. The modernized T-72 Scarab tank is characterized by Czech-made DYNA reactive armour integration, stronger V-84 engine, improved optics and the remotely controlled weapon station.

The company has customers all around the world, a turnover of \$ 110 million over the last period, and works with renowned global security technology producers.



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# VARIEL

## Military Containers

Since 1964, VARIEL has been manufacturing technology houses, shelters and containers, which are primarily used as large-scale covers of various technologies. In 1990's with the increasing demand for ISO containers VARIEL introduced its Series 1 ISO containers into its product portfolio. As it turned out, it was a very good move because containerization is currently dominating the world and ISO containers are being used not only by armies around the world but also as main components of other integrated rescue systems and of course also in non-military applications.



VARIEL military containers serve to secure the basic needs of military units in the field conditions. The materials used to manufacture the containers ensure product durability while keeping maintenance at a minimum. These

containers are an ideal solution due to ever more demanding military requirements. Besides the fact that they can be set up quickly and easily, they offer a high level of comfort for their users. All containers are tested according to

the Standard ISO 1496-1 and equipped with the CSC label.

Completed orders include, for example, supplies of special shelters for the needs of the Czech Army, such as sanitary, refrigerating, command and

control, medical, storage, energy, field kitchens, etc. VAREL also supplied command and control and laboratory shelters for French Army, special shelters for the army and integrated rescue system of Great Britain, shelters for accommodation of persons, special expandable emergency survival shelters, field transfusion workstations, and field command posts, containers for treatment, packaging and storage of drinking water. In 2018 two new special containers were developed by VAREL – Watchtower container (10' expandable container) and CT-scanner container (20' expandable container 3 in 1). Both of these containers are protected by international patents.

VAREL is not only the production company; it runs all own pre-production activities. Based on the customer's request, we prepare a design proposal, perform design calculations, processes production drawings and performs tests to obtain necessary certificates and product attestations. Each of our products incorporate a great deal of intellectual work, and many of them are protected by utility models and patents valid throughout the world.

In addition to a high degree of know-how, the company also has a modern technological equipment, including CNC punching machines, 2D laser for sheet metal cutting, 3D laser for profile cutting, folding presses, double-sided sheet bender, 3D pipe bender, 3D printer, five axis machining center, welding robot, specially designed for container welding, surface treatment equipment (blasting, degreasing and phosphating), welding machines for welding steel, stainless steel and aluminium and a top certified bonding workplace. Of the many certificates that VAREL holds, the ones, which are worth noting, include: welding of railway vehicles and components according to ČSN EN 15085, level CL1, bonding according to DIN 7601, A1 class, manufacturing, repairs and mechanical testing of ISO containers, execution of steel and aluminium structures (EN 1090), etc.

VAREL technology containers  
VAREL product portfolio is complemented by a number of technology containers and houses. Their production





has been a tradition since the foundation of the company - since 1964, when Czech Railways started to use the houses mainly as covers for railway crossing security equipment. Since then, technology houses have undergone a number of changes and inno-

ventions. At present, the company offers very light, yet robust and durable, high-end technology houses. VAREL technology containers and houses include, for example, containers for GSM mobile operators in the Czech Republic and Slovakia, special tailor-

made containers for the Philippine gas power plant, oil-pumping control technology, located behind the polar circle, containers for diesel engines, compressors, data centres, power stations, battery storage etc.

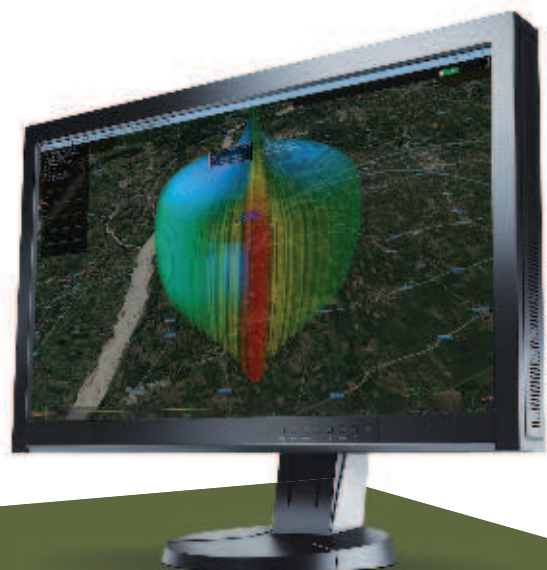






# Passive ESM Tracker Simulator

Training tool for the Passive Surveillance Systems (e.g. VERA-NG)  
– simulating any type of battlefield scenario: airspace, ground or navy.





# Opportunities for the Czech companies in Israel



The Czech Republic and the State of Israel cooperate in many issues – geopolitical, economy, culture, science and tourism. The warm relationship between the Czech Republic and the State of Israel is built on a similar historical experience. Since the mid-1800's, Czechs and Jews have been systematically comparing themselves to each other in literature, music, politics, diplomacy, media, and historiography. A shared perception of similar fates of two small nations trapped between East and West, in constant existential danger, helped forge a Czech-Jewish "national friendship" amid periods of estrangement. What makes this relationship special is the sharing of basic values and a similar understanding of some of the challenges the world is facing today.

Although ties between the Czech Republic and Israel have not always been close, especially during the interruption of diplomatic relations under the former communist regime in Prague between 1967 and 1990. Since 1989 Israel has acquired again an old friend in Europe - the Czech Republic. After the fall of communism in 1989, diplomatic relations were reestablished, and in April 1990, then - Czech president Václav Havel became the first leader from former Communist Central-Eastern Europe to visit Israel. Good relations with the Jewish state became symbolic of independent foreign policy as well as confirmation of the Czech Euro-Atlantic position.

In October 2013, Czech President Miloš Zeman, met with President Shimon Peres and Prime Minister Binyamin Netanyahu. Both Israeli politicians lauded strong ties between the two countries and praised Czech support for the Jewish state. Peres appreciated both the strong Czech stance in its decision to oppose "the aggressive intentions of the Iranian regime," and the role the Czech Republic had played in blacklisting the military wing of Hezbollah as a terrorist organization. Netanyahu thanked Zeman for his country's friendship, saying that "Israel has no better

friends in Europe than the Czech Republic."

Zeman added that "our friendship is based on facts, not only words," and mentioned that the Czech Defence Ministry was sending the CASA transport aircraft with 13 soldiers for a UN observer mission in the Sinai Peninsula. Moreover, at an event honoring Israel's 70<sup>th</sup> Independence Day at Prague Castle the Czech president, Prime minister, Parliament speaker and the Foreign and Defense ministers officially announced in a joint statement the opening of a "Czech House" in Jerusalem. The Czech House would shelter government institutions including the foreign ministry's Czech Center, the trade agency CzechTrade and tourism agency CzechTourism. The Czech House in Jerusalem has been ceremonially opened by President during his visit to Israel in November 2018, and the first step in the plan to move the Czech embassy to Jerusalem.

## The Czech-Israeli export market

Trade and economic relations have undergone extremely positive developments since establishment of independence for the Czech Republic in January 1993. In recent years, trade volumes are constantly increasing, particularly of Czech exports to Israel. In 2017 Czech exports to Israel amounted to CZK 24.2 billion, 0.6 % more than in 2016 (23.6 billion). In the Middle East region, Israel is the Czech Republic's most important trading partner. Israel is the third non-European market for Czech exports after the U.S. and China. The value of exports doubled in the most recent year. We can see a strong increase in demand for investment from Israelis interested especially in real estate or other fields in the Czech Republic.



**Trade exchange between January and July 2018**

Revenue (in mil. CZK)    Export (in mil. CZK)    Import (in mil. CZK)  
 15 846                      12 148,7                      3597,3

	Export in thousand CZK	Import in thousand CZK	Value in thousand CZK	Balancing in thousand CZK
<b>2010</b>	11 156 576	4 727 422	15 883 808	6 428 344
<b>2011</b>	11 052 779	5 075 603	16 128 380	5 977 178
<b>2012</b>	14 719 898	4 953 807	19 673 705	9 766 091
<b>2013</b>	12 342 371	4 333 367	16 675 958	8 009 184
<b>2014</b>	13 750 736	5 923 848	19 674 584	7 826 888
<b>2015</b>	17 395 897	5 561 541	22 957 438	11 834 356
<b>2016</b>	23 641 751	6 033 260	29 675 011	17 608 491
<b>2017</b>	24 728 940	5 525 194	30 254 134	17 703 746

**Czech Republic Exports to Israel (in thousand CZK)**

Goods item	01-11/2017	01-11/2016	Change
Road vehicles other than railway, tramway	13 272 529	12 530 199	5,92%
Machinery, nuclear reactors, boilers	4 045 072	3 905 519	3,57%
Electrical, electronic equipment	1 131 737	1 117 280	1,29%
Optical, photo, technical, medical apparatus	848 406	956 828	-11,33%
Organic chemicals	408 753	233 271	75,23%
Arms and ammunition, parts and accessories	253 306	130 775	93,76%
Toys, games, sports requisites	217 290	244 018	-10,95%
Plastics	191 152	182 527	4,73%
Miscellaneous manufactured articles	189 150	93 449	103,11%
Furniture, bedding, lighting signs, prefabricated buildings	174 164	159 585	9,14%
Rubbers	170 720	118 537	44,02%
Articles of iron or steel	157 604	324 156	-51,38%
Sugar and sugar confectionery	140 529	357 657	-60,75%
Glass and glassware	98 781	139 567	-29,79%
Cereal, flour, starch, milk, preparations and products	78 898	87 145	-9,67%
Paper and paperboard, articles of pulp, paper and board	74 522	91 236	-18,59%
Iron and steel	73 719	53 124	16,78%
Wood and articles of wood, wood charcoal	62 991	57 029	10,34%
Articles of board, knitted or crocheted	62 592	58 454	7,08%
Residues, wastes of food industry, animal fodder	59 876	47 925	24,99%
Aluminium	56 576	38 844	45,65%
Copper	52 585	77 320	-31,89%
Ceramic products	40 437	38 411	5,27%
Printed books, newspapers, pictures	39 847	21 249	87,52%
<b>Total</b>	<b>22 279 112</b>	<b>21 487 858</b>	<b>3,68%</b>

**Defense industry**

Growing economic relations with the State of Israel provide a good path for the cooperation in the field of defense industry. Therefore, the Czech Republic decided to participate at the International defense & HLS Expo (ISDEF) with its National Pavilion. Since its beginning ISDEF became the Premier International Defense and Homeland Security trade show in Israel. The event has catered to the needs of the Military, Police, Special Forces, Security Agencies, HLS organizations and Emergency Responders by exposing them to the products and solutions provided by innovative Defense and security companies worldwide since 2007.

The official delegation from the Czech Republic was led by Deputy Defense Minister, Mr. Tomáš Kuchta. On the occasion of his visit Mr. Kuchta announced that the Czech Republic is planning to send a defense industries attaché to Tel Aviv who will be in charge of research, development and defense purchases. According to

Mr. Kuchta, the new position will help Czech defense companies know their Israeli counterparts better and vice versa. The posting is part of a pilot project that began in August 2018. Moreover, the former Czech Defense Minister Martin Stropnický, who became a new Czech ambassador in Israel, said that Prague would spend some \$7.1 billion over the next 10 years to upgrade the country's armed forces at a three-day annual Israel Defense Exhibition, or ISDEF.

At the Czech Pavilion of 50 square meters both procurement and end users from the public and private sectors, included leading companies in Israel and the world, had the opportunity to learn about the latest developments in defense technology made in the Czech Republic and watch live demonstrations showcasing a variety of products. Therefore, we are happy to announce that in 2019 the Embassy of the Czech Republic in Israel together with CzechTrade local representative, and with support from both the Ministry of Defense and Ministry of Foreign Affairs is planning to organize the third Czech National Pavilion at the 9<sup>th</sup> International defense & HLS Expo, again.

**Examples of military cooperation**

In 1948, the former Czechoslovakia played a major role in the helping Israel fight for its independence. Its government provided Israel with vital deliveries of weapons, including vital arms and even several Avia S-199 fighter planes, to secure their victory over the Arab states. Nowadays, the situation is somewhat reversed: Czech pilots have trained at Israel Air Force bases in the Negev desert, which has helped prepare them for conditions in Afghanistan's Kandahar province. More recently, in late April, the Czech-based Aero Vodochody and Israel Aerospace Industries signed a major partnership agreement to develop and market an advanced version of the L-159 trainer and light attack aircraft.

Prague is currently in the midst of finalizing a NIS 500m. deal with Israel's IAI/ELTA systems for eight 3D mobile air-defense radars to cover the country. The production of the systems will be a joint Israel-Czech project with 70 % of the system made in Israel and the other 30 % by Czech military electronics company RETIA which has partnered with ELTA for the past few years. The eight ELM-2084 multi-mission radar (MMR) systems allows for the monitoring, tracking and interception of several airborne projectiles simultaneously at an altitude between 100 meters to 3,000 meters and cover a wide area of about 250 kilometers. The ELM-2084 MMR system, which is used by the Canadian Armed Forces as well as by the IDF – as part of the newly operational David's Sling and Iron Dome anti-missile defense systems – is expected to be delivered no later than 2021 and will replace obsolete Soviet-made radars that the Czech military received in 1991. On the other hand, in the Czech Republic we have ELDIS Pardubice, which is a company dedicated to developing, manufacturing and managing state of the art radar systems and technologies for air traffic control.

Well established in Israeli market is Sellier & Bellot - one of the oldest companies in the shooting and defence industry and defence industry and ranks among the most important engineering companies in the Czech Republic. The company produces a wide range of hunting and sporting ammunition & components for pistol and revolvers, rifles, shotguns, and rim fires. The majority of their products are exported all over the world. An integral part of production is the manufacture of tooling, as well as development and implemen-



tation of technology for the production of ammunition. Over 85 % of products are exported and, in addition to the vast civil product range, the company manufactures special products for the armed forces. Glomex MS is a supplier of products and services to the police and armed forces of Central and Eastern Europe (night vision, combat identification, unmanned aerial reconnaissance vehicles, personal protection equipment for pilots, parachute systems and special aviation equipment).

### Examples of successful Czech exporters to Israel

Apart from the military, there remain many opportunities for Czech companies that wish to expand their business activities into Israel. Also, the political and cultural Czech-Israeli cooperation puts exporters at an advantage. Then again, exporters must overcome some barriers, e.g. distance and consideration of their future activities in Arab markets. Sometimes, an option is to consider choosing a local Israeli partner – distributor, a prerequisite for success in this market. Regarding promising sectors, it is necessary to take into account Israeli plans and investments. There is the possibility of delivering goods for the transport, safety and engineering sector. There is also a potential in branches such as gas deposits, where Czech companies can export technologies and components. As a start-up nation, Israel offers possibilities for cooperation in the software industry.

**Barum Continental** is one of the world's leading automotive industry suppliers. A supplier of tires, brake control systems, driving dynamics control, driver assistance systems, sensors, systems and components for the powertrain and chassis, instrumentation, infotainment solutions, vehicle electronics and technical elastomers. Barum tires are imported to Israel by Kislev International Ltd.

**Dekonta** is a renowned Czech company providing a wide range of environmental services such as environmental emergency response services, consultation services, etc. Dekonta will continue to clean up contaminated areas in cooperation with the Israeli company SAR 17.

**ETD power transformers** is based in Pilsen; is experienced in the production of distribution, power and other various types of world class transformers reaches back to the year 1923. Current products include power transformers (single and three phased regulating and non-regulating), auto transformers, furnace transformers, traction transformers and chokes for use in the rail industry as well as special reactors.

**Meopta-Optika** is a company that manufactures various products, mainly in the optical field. The company was founded in 1933 under the name Optikotechna in Přerov. Meopta is a global manufacturer of precision optics, specializing in the design, engineering and assembly of complex optical, opto-mechanical and opto-electronic systems. 80-90 % of production is for export, including ca. 15 % (ca. 400 mil. CZK) exports to Israel.

**LASVIT** is a creative hub of glassmaking talents, fresh ideas, and daring designs. This young, progressive Czech glassmaking and design company inspires the world with its breathtaking custom-made installations exhibited all over the world, as well as with their unique lighting and glassware collections made from hand-blown glass. In Israel you can find LASVIT projects at: Waldorf Astoria Jerusalem, The Residences, Hilton Tel Aviv, Bavli Park, Tel Aviv, B.S.R.

Towers, Tel Aviv, Rothschild 30, Tel Aviv, The Gymnasia Tower, Tel Aviv, West Lagoon Resort, Netanya.

In 2017, **ŠKODA AUTO DigiLab** and Champion Motors Ltd., the Israeli importer of Czech motor vehicles, founded a joint-venture focused on IT development and access to new technologies in Tel Aviv, where it is in daily contact with Israeli startups and seeks out technology projects that can help ŠKODA to implement new services and make cars more efficiently. ŠKODA AUTO DigiLab already has a select portfolio of more than 10 technology companies, and it is analyzing their solutions for potential testing.

**Škoda Transportation** is an engineering company based in Pilsen. Its operations are in the area of transport engineering, manufacture of rail vehicles for urban and railway modes of transport, traction motors and drives for transport systems in the tradition of Škoda manufacturing plants. It has a strong footprint in the local and international market. In Israel supplies locomotives and light rail vehicles de facto trams, among others.

**Tatra Trucks** is one of the most veteran vehicle manufacturers in the world, situated in Kopřivnice. Its core production program includes heavy-duty off-road trucks and vehicles for combined off-road and on-road transport. Important commercial territories traditionally include Russia, the former CIS countries, Israel, India, the countries of the Arab peninsula, Australia, the US and Europe. This company supplies to the Israeli Army and Israeli firefighters sand-colored and military trucks, desert-equipped Tatra trucks, and for example for anti-aircraft missile launchers.

**Třinecké Železárny** together with **Moravia Steel** and numerous subsidiaries rank among the most significant industrial groups in Middle Europe. At present their products are exported to more than 60 countries all over the world. In Israel their products are marketed exclusively by IAT International, Inc. – mainly for rail production. Israeli Railways Ltd., a government company, contracts in the form of tenders – and Moravia Steel has successfully won tenders for many years, in 2015 as well Subsidiary ŽDB.

**Zentiva** is a provider of generics to the Sanofi group; the third largest and fastest growing generics company in Europe. Holds leading positions in several pharmaceutical markets, such as the Czech Republic, Romania and Turkey, and is successfully expanding its business in other international markets.

*Martin Hošek, Political and Economic Department*





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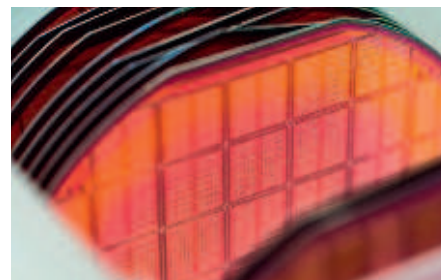
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esc Aerospace (ESC) offers a product range of various On-Board Control Systems for vehicles and payloads, ranging from ionizing radiation hardened detectors to Data Relays and Sense & Avoid Systems. Commercial products include the 3<sup>rd</sup> generation of UAS/RPAS avionics with an Autopilot, Trajectory Management and Tracking functions; the 4<sup>th</sup> generation of GNC avionics has been developed for Launchers and Missiles, Micro-Satellite Instrumentation and Mini-Satellites. The 5<sup>th</sup> generation is a miniaturized and highly reliable system that enables UAS/RPAS to perform SWARM functions. ESC develops



systems based on a revolutionary ASIC designed for a wide range of space and non-space radiation measurements payloads. It can be deployed as a miniaturized radiation detector with the capability of identifying radiation in early warning systems. Our company has recently presented its UAS/RPAS flight simulator. The AERO/SPACE FLIGHT SIMULATOR is targeted for expert users of UAS/RPAS and includes various aircraft and advanced options such as full autopilot.

We are an expert in areas of Avionics, Autonomous Software, Counter-Unmanned Aerial Systems (C-UAS) and Guidance, Navigation & Control (GNC) systems. We offer services as a leading SME in innovative R&D projects with a focus on aerospace satellite payload chains modeling, as well as target drone defense services to eliminate the threats and to localize the radioactive waste (CBRN services). esc Aerospace offers also space qualified On-Board Control Systems, full design of space qualified payloads and a consultancy to satellite design, its implemen-



tation, testing and preparations for a rocket launch.

esc Aerospace is building a new satellite Communication Ground Station, near to Prague, to monitor our own satellite payloads, such as mentioned radiation detector payloads (Radiation orbital monitor based on the Spacepix sensor). Our company has prepared several concepts of nano- and micro-satellites. These platforms could be used for EO monitoring and reconnaissance.

More information about esc Aerospace at [www.esc-aerospace.com](http://www.esc-aerospace.com)

## The company VORRENS s.r.o.



The company VORRENS s.r.o. was founded in 2009 as a company focusing on supplies of material and services for users of air and ground technology, including military equipment. VORRENS has progressively built and broadened its network of agencies and partners, which is now spread throughout the countries of Europe, the Commonwealth of Independent States, central and northern Africa and south-east Asia. Employees at the company draw on their many years of experience in trading in the services and products

of Czech engineering and more. Company VORRENS holds an ISO 9001 certificate and is authorised by Czech authorities for trade with military material. VORRENS is a member of Czech Association of Defence Industry and French-Czech Chamber of Commerce.

### VORRENS offers supplies of materials and services in the field of:

- Maintenance, repair and exploitation of aircraft and helicopters;
- Spare parts and ground equipment, incl. test stands and testing devices, tools and other components and materials;
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devices for pilot's survival kits);

- Protective ballistic equipment and clothing for the police and special forces of the army (e.g. anti-riot equipment, ballistic vests, shields, gloves and helmets and other parts of the individual protection), incl. ballistic protection of vehicles, boats and helicopters;
- Equipment of communication technology for air and ground crews and for mobile devices;
- Inflatable military decoys;
- Training of helicopter pilots and operators, incl. ground technical groups;
- Electric motors and generators for industrial use and power plants;
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**Contacts:** VORRENS s.r.o., Severní III. 633/24, 141 00 Prague - 4, Czech Republic, phone (+420) 272 760 019, fax. (+420) 272 760 017, e-mail: [info@vorrens.cz](mailto:info@vorrens.cz), [www.vorrens.cz](http://www.vorrens.cz)

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**PBS Velka Bites** has been a leading manufacturer of products and equipment for the international aerospace industry for **almost 50 years**. The **unique ability of PBS to carry out in-house development, manufacture and testing** of aircraft products in accordance with global aerospace standards have greatly contributed to its enduring success on the global market.

### PBS PRODUCT PORTFOLIO:

- **Turbojet Engines (thrust range 200 – 1500 N)** designed for UAVs, Target Drones and Missiles
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### Picture: PBS Turbojet Engines Portfolio

Quality and Environmental Management System that complies with ISO 9001, AS 9100 and ISO 14 001 manages its modern manufacturing processes. Moreover, it holds Design Organisation Approval (DOA), Production Organization Approval (POA) and Maintenance Organization Approval (MOA) for aerospace products.



# Czech Participation at the International Paris Air Show and the Franco-Czech Trade in Aerospace Industry Products



In 2019 the Czech participation at the International Paris Air Show will once again be organized as a national exposition sponsored by the Czech Ministry of Industry and Trade. The show is the largest one of its kind in the world, and France is the top trading partner of the Czech Republic in the field of aerospace engineering.

The International Paris Air Show, in French "Salon International de l'Aéronautique et de l'Espace" (SIAE), takes place every other year. The first show was organized in the Grand Palais in 1909. Since 1953 it has been held exclusively at the Parc des Expositions Paris le Bourget, an exhibition park next to Paris le Bourget Airport. Now it is the largest and longest-running aerospace trade show in the world which in 2017 attracted 2,381 exhibitors from 48 countries and 322,000 visitors, out of which 142,000 were business people.

The 53<sup>rd</sup> edition of the show will run from 17 to 23 June 2019 and again there are many

Czech exhibitors expected to participate in this event within a Czech national exposition sponsored by the Ministry of Industry and Trade of the Czech Republic.

**The last Czech national participation at the International Paris Air Show in 2015 included two Czech aircraft industry associations and 9 companies. They were the following ones:**

- Association of the Czech Aerospace Industry, Prague (representing 39 member companies and institutes)
- Confederation of the Czech Aviation Industry, Odolena Voda (representing 28 member companies and institutes)
- Aero Vodochody Aerospace, Odolena Voda (jet trainer aircraft manufacturer)
- Aircraft Industries, Kunovice (light transport aircraft manufacturer)
- Jihlavan, Jihlava (aircraft hydraulic components and systems manufacturer)
- Jihostroj, Velešín (aircraft hydraulic and fuel systems manufacturer)

- LOM, Prague (helicopter overhauls and upgrades)
- Mesit Aerotrade, Prague (international trade in aircraft and airport equipment)
- Mesit Asd, Uherské Hradiště (aircraft devices and control systems manufacturer)
- PBS, Velká Bíteš (aircraft engines and components manufacturer)
- Seko Aerospace, Prague (aircraft engine components manufacturer)

Special presentations were made by the Czech companies at the accompanying conferences. Also a new L-39NG subsonic trainer and light combat aircraft manufactured by Aero Vodochody Aerospace company was introduced on that occasion. The previous model, a legendary L-39 Albatros is the most widely used jet trainer in the world. Aero Vodochody Aerospace also cooperates internationally with some of the most prestigious manufacturers, such as Airbus, Bombardier, Embraer and Sikorsky Aircraft, in both civilian and military programmes.

**The following four Czech companies exhibited individually also at the 2017 edition of the show:**

- Jihostroj, Velešín (aircraft hydraulic and fuel systems manufacturer)
- JMB Aircraft, Choceň (small aircraft manufacturer)
- PBS, Velká Bíteš (aircraft engines and components manufacturer)
- Rotor Clip, Budyně nad Ohří (retaining rings and clamps manufacturer)

The aerospace industry exports from the Czech Republic to the rest of the world reached 635 million US dollars in 2017. The exported products were primarily aircraft components but included also around 300 small and 30 mid-size aircraft. Two thirds of these exports were made to four countries – France, UAE, USA and Russia, France being at the top with 25.5 per cent of the total, i.e. 162 million US dollars.

Aircraft components and parts accounted for 98 per cent of the total Czech aerospace industry exports to France in that year. The imports from France to the Czech Republic in this field were also significant at nearly 56 million US dollars, also consisting mainly of aircraft parts and components. This makes the component supplies the most important part of cooperation between the two countries in the aerospace industry and a good basis for the Czech participation at the next edition of the International Paris Air Show in June 2019 as well as for further development of bilateral trade and industrial cooperation. The examples of already existing or accomplished cooperation include:

- Aero Vodochody Aerospace, Odolena Voda
- structural aircraft parts and assemblies for Airbus
  - aircraft door components for Latécoère



Aircraft Industries, Kunovice

- industrial cooperation with EADS-Sogerma

Jihlavan, Jihlava

- hydraulic safety locks, valves and units for Airbus

Jihostroj, Velešín

- research and development of advanced propellers with Safran

Rotor Clip, Budyně nad Ohří

- retaining/spiral rings and wave springs for Airbus

New opportunities for the intensification of trade relations between the Czech and French aerospace industry companies are provided also by the Franco-Czech cooperation in the field of defence and security which is based on both countries being members of NATO and the European Union.

change information and to form attitudes towards the current security crises in the world, education of the military staff, participation in joint military exercises and promotion of the cooperation between the French and Czech defence and security industry companies by their participation in the specialized trade fairs and exhibitions organized in the two countries. The potential for extension of the bilateral trade and industrial cooperation in this field is now growing as the armed forces of both countries are planning extensive modernization and technical development projects.

Compared to the overall trade between the two countries the aerospace industry exports account for under 2 per cent of the total Czech exports to France. The biggest share take motor cars and automotive components (27.1 per cent in 2017), followed by electrical machinery and equipment (11.1 per cent) and computer components and accessories (8.9 per cent).

On the side of imports from France to the Czech Republic the pattern is similar with aerospace industry products around 1 per cent of the total and motor vehicles and accessories (16.5 per cent), electrical equipment (12.3 per cent) and pharmaceutical products (8.1 per cent) at the top.



In addition to the cooperation within the two organizations, there are yearly programmes of bilateral cooperation concluded every year between the French and Czech ministries of defence. These programmes specify activities such as regular meetings of representatives of the defence ministries in order to ex-

Václav Žilka  
Czech Embassy Paris  
Photo: Shutterstock



# Inflatable Decoys in Military Operations

Modern inflatable decoys from synthetic silk are lightweight and durable. Apart from nearly perfect optical illusion they feature also integrated radar reflectors and thermal emitters designed in laboratory. Their signatures are tested directly in the military operation fields. The enemy is not able to decide whether he has located an inflattech decoy or the real armament. Their deployment and relocation takes only between 10 to 20 minutes. Due to their light weight,

which ranges from 50 to 120 kilograms (tank or missile launcher decoy), just two or four men are sufficient.

Inflatech decoys bring the opportunity for armies to train with the equipment of the enemy. Inflatable copy of any equipment can be purchased for a fraction of the price of the original one, which for various reasons sometimes cannot be purchased at all. It is the most effective solution for electronic warfare training. The operating cost of inflattech decoys is close to zero.

The most advanced western armies are planning to include inflattech decoys into their arsenal shortly. They will supplement the existing armaments and boost the overall capability of the army. British army is planning to employ inflatable decoys in real conflict situations

(<https://www.thetimes.co.uk/article/inflatable-decoy-tanks-to-puff-up-armys-strength-xhnt8jl88>)

Similar strategy can be expected from other large European armies, such as the French military forces.

For example, the Russian army employs high-tech inflatable decoys on a regular basis and their inflatable division took part in the West 2017 exercise.

(<https://www.nytimes.com/2016/10/13/world/europe/russia-decoy-weapon.html>)

The Czech Republic, of all NATO members, is currently the only producer of the most advanced inflatable decoys. The private company INFLATECH develops, produces, tests and supplies the decoys to other NATO countries, under the auspices of the Ministry of defence of the Czech Republic.

One of the new features of the 2018 improved INFLATECH decoy is a dual thermal system which ensures that IR signatures are nearly unrecognizable from the real armament.





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the supplied components. We cooperate with partners from more than 26 countries.

At IDET trade fair in Brno, which is held from 29<sup>th</sup> May 2019 to 31<sup>st</sup> May 2019, we will present representative of connector product lines SR, 2RM, PK, VS, BS, ZGT, RWN, 2WK, TNR, TSL and TEX - explosion proof Series.



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**EGO Zlín, spol. s r.o. (Ltd)** - producer and distributor of systems used when dealing with critical situations (traffic accidents, environmental disasters, industrial disasters, occurrence of dangerous infections). The company deals mainly with special health care sector, integrated rescue services, civil defense, military health care, CBRN units or urgent medicine and also in treatment of long-term patients.

## Production segments



**Complex CBRN protection** - personal and collective protective equipment, mobile isolation device for transportation of an infected patient, subsequent long-term isolation in a mobile compartment



**Logistics** - mobile inflatable tents with accessories to create mobile workplaces for use in case of crisis situations in field conditions



**Decontamination** - mobile decontamination inflatable showers for individual decontamination, complex units for civil and military usage



**Emergency system** - vacuum fixation means (splints, mattresses) rescue transport means, stretcher restraint system, rucksacks etc.



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# New IDET NEWS on the occasion of IDET 2019 in Brno, Czech Republic

Next edition of IDET NEWS Czech-English magazine will be published on the occasion of IDET, PYROS and ISET exhibitions 2019 as a traditional part of that great show hosted by BVV Trade Fairs Brno. Our publishing house MS Line is again the principal media partner of the IDET 2019 Fair in the Czech Republic.

IDET NEWS will present you unique, new and interesting items exhibited by the companies including the invitations to their stands, along with interviews with the national administration bodies' representatives.

If you are interested in a presentation of your company's profile or products, contact us at: [www.msline.cz](http://www.msline.cz) or [info@msline.cz](mailto:info@msline.cz)

Last issue of IDET NEWS 2017 you can read here: <https://msline.seethebrand.com/idetnews/2017/>



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