

# for Defence and Security Industry **Review**®

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The Media Platform of the Defence and Security  
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You can find more on the page 40

The background of the advertisement is a photograph of two soldiers in full combat gear, including helmets and vests, standing in a forest. The scene is dimly lit with a strong greenish-yellow tint, suggesting a night or low-light environment. The soldiers are holding rifles and appear to be in a tactical stance.

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Dear readers,

in this first edition of the year, we bring you a number of interesting interviews, especially with important representatives of the state administration and a presentation of the Czech industry, thereby fulfilling the main mission of the magazine, which is to facilitate better communication between the state and industry in the field of the defence and security community.

Just like last year, I must honestly say that the MS Line Publishing House and the editors of the Review greatly appreciate the fact that a significant part of Czech defence and security industry companies used the magazine REVIEW as well as our other media IDET NEWS and Security and Defence Technologies Catalogue of the Czech Republic for the presentation of their activities. From the DSIA CR member base, which includes approximately 170 companies, approximately 120 companies used the magazine Review for their presentation. It is an extraordinary event for us and I appreciate it very much.

On this occasion, I would like to especially thank the Representative Editorial Board, the Ministry of Foreign Affairs of the Czech Republic, the Ministry of Defence of the Czech Republic, the Ministry of the Interior of the Czech Republic, and their executive units - the Czech Armed Forces, the Police of the Czech Republic

and the FRS CR, but also the Customs Administration of the Czech Republic, the Prison Service of the Czech Republic and the Administration of State Material Reserves of the Czech Republic for supporting our work and for active participation in the creation of the magazine. Together with representatives of the industry, it is a unique community that is outstanding in its own way and original in the Czech Republic. This is also confirmed by our reportage from the annual meeting and the awarding the best ones event at the end of the magazine. Of course, big thanks go to the Presidium of the DSIA CR, the Brno Trade Fairs, the management of the FFF and NATO Days, as well as many others for the great cooperation in 2023.

In this edition, we focused mainly on the presentation of medium-sized and small companies, and we want to continue this trend throughout this year. We are honoured that even our Publishing House and editors could, at least to a small extent, contribute to the success of the Czech defence and security industry in the form of more than twenty-five years of support and promotion at home and abroad. I believe that our publishing plan for 2024 will fully satisfy everyone who wants to participate in this communication.



**Dipl. Eng. Miloš Soukup**  
editor in chief



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# DEFENCE MINISTER ČERNOCHOVÁ: WE NEED ONE ANOTHER WITH THE DEFENCE INDUSTRY

**The MoD has commissioned a survey by the Defence and Security Industry Association and the Defence Industry Section of the Chamber of Commerce to map out the issues defence industries are facing in getting bank loans, which preclude investments and increase of production capacities. What expectations do you have concerning the renaissance of cooperation between defence industries and the MoD?**

The state and its defence industry are natural partners and the survey testifies to that. The partnership naturally does not mean we would agree on everything. Partnerships are about seeking common interests and ways to meet them. Yet the key goal should be the ensuring the defence capability of the Czech Republic, because it would not be possible to achieve prosperity without adequate defence posture.

The quest for mutual relationship has been affected by different variables. The opinion prevailed in the Government that it would be unlikely to see a war in Europe with such intensity and scope we are presently seeing just several hundred kilometres from our borders, and the trend prevailed of downsizing the military down to cutting into the bone. And reduction of defence spending practically took us to the very edge of long-

term acquisition planning. At the end of the day, the Czech defence industry had little motivation for long-term investments and capacity building.

Thanks to the Act our Government managed to pass in 2023, we will finally be meeting the 2% defence spending benchmark, which will by the way bring about the necessary stability and foreseeability with the goal to carry out the long overdue modernisation of our military.

**Does it mean the paths of the MoD and the defence industry have already intersected?**

It is absolutely critical to have a strong defence industry in the time of crisis. This is what I claim on sustained basis that the MoD and the arms-makers have to be able to speak with one another.

The Ukrainian experience showed us the criticality of having in place a robust system that would adapt in case the supply chains get interrupted, having adequate stocks and contracted capacities for maintenance and manufacture of equipment and ammunition. At the same time, we should accentuate the rapidly developing advanced technologies and the capability of quick innovation. That claims the building of capabilities and familiarity with the future course

the Armed Forces would like to pursue and its future requirements.

Practically from the very first moment of the Russian aggression against Ukraine, we have established very good contacts and cooperation with the defence industry representatives, thanks to which we have an effective system of assistance to Ukraine to deliver necessary military materiel. It is also an important impetus for supplies to the Czech Armed Forces. It is now upon us all to cultivate these relations effectively to the effect of strengthening our defence posture.

**Do you believe the next Government will continue strengthening this defence posture?**

I am sorry for the fact that there is still some ambivalence on the political scene in defence and security issues and that the Armed Forces sometimes tend to be a scapegoat of the political struggle. It is absolutely key at this time for us to be able to act in concert and consistently. For it is true for defence more than any other governmental departments that strategic projects span multiple election periods and the worst that can undermine our defence is instability that can eventually lead to a poor defence posture.



However political powers in our country may assess the Russian threat, one thing is clear: we need the military. Without it, we would be like turtle without the shell. More than one hundred years ago, politicians also thought the nascent Czechoslovakia could do without the military, but they were proven wrong quickly. And the public opinion then was much more tired of war, than the yelling minority is today "tired" of mere news of the war Russia wages in Ukraine. I underscore: we need to say "against" Ukraine, and not try to pass the buck by saying "in" Ukraine. Wars are not natural disasters, someone starts them, someone is the aggressor and someone is defending against the aggression. And here the aggressor is absolutely clear: it is the Putin regime.

I trust that no matter the result of the next and any subsequent elections, responsibility will prevail on the political scene. After all, the security situation does not allow for anything else. Defence cuts gave us a bad, but unique lesson that neglecti-

ng national defence posture may backfire fatally. Look at the previous Governments and our Government and you will see crystal clear that defence cuts are many times easier than increase of defence spending and how negatively they affect the Armed Forces as such.

It is therefore necessary to strengthen the familiarity of both the public and politicians that defence has been an essential mission of any state from time immemorial, without which they could not exist.

The representatives of the defence industry and branch associations can be very instrumental in achieving that. They should show to the whole political representations how important it is for the businesses to have an early knowledge of the future course of armed forces modernisation. They need to know that in order to adjust their planning accordingly. It is not possible to start up the production chains overnight and there will be no investments without a good future prospect.

### Speaking of planning, could you outline the plans in for the near term?

As I said, this year we are finally going to spend two percent GDP on defence. The defence appropriations for 2024 amount to CZK 151.2 billion. Roughly a half of that amount will go into investments – we will invest into armaments, equipment, infrastructure and information technologies. Thanks to the new legislation, we are able to flexibly plan multiyear financing of strategic projects that are essential for the Czech Republic's defence capability.

The internal carryover debt in the Armed Forces is however immense, some estimates speak about hundreds of billions of Czech korunas, and it applies to all domains, not just the equipment. Even the Governments to come will need to overcome the debt. There is a rough proportion for underfunding that remedying takes approximately the same time.

As to investments, there is truly a gamut of





projects, ranging from those we managed to start to those only slated for launching. The major ones include the procurement of the latest 5th generation aircraft and, for instance, infantry fighting vehicles. A critical step ahead, closely associated with our support to the fighting Ukraine, was the acquisition of the Leopard 2A4 tanks. At the same time, we have discussions underway to acquire the advanced Leopard 2A8 main battle tanks in order to complete the building of the heavy brigade, without which we would not be able to deliver on our NATO membership commitments. But it is not just about our commitments to NATO, we primarily have obligations towards ourselves – the defence of our territory, which is the Czech Armed Forces' primary mission, is not conceivable without the heavy brigade. In all contracts we are placing, we are seeking maximum cooperation with the domestic industry. The participation of Czech companies wherever possible is for us one of the essential conditions of the procurement of modern equipment. The CV90 infantry fighting vehicles stand a good example, but we also managed to negotiate a unique engagement of Czech companies in the F-35 project. That involves 14 projects valued at over CZK 15 billion in key areas such as the localisation of the production chain into the Czech Republic, as well as research, development, maintenance, servi-

cing and repairs. At the same time, we have identified further potential cooperative projects with the industry and universities on pilot training, artificial intelligence and space technology.

The last year's data testify to the importance of the Czech industry's participation as almost 13,000 contracts were concluded, of which 12,000+ contracts valued over CZK 31 billion were entered into with Czech-based entities.

The room for the Czech industry opens up virtually in all areas of the armed forces modernisation. The war against Ukraine showed the importance of logistics, which

may develop in the field of digitalisation, robotization and artificial intelligence. The importance of dual use technology continues to rise – if we speak of opportunities, this is not strictly limited to defence industry in the traditional sense.

**Is it win-win then? Is it fair to say that the Government and the defence industry need one another?**

Indeed. The domestic market is usually the first one for the businesses to address, and a successful domestic contract is the primary reference of quality for international customers. Thanks to successful contracts at home, Czech enterprises stand a greater chance of penetrating international markets, including outside NATO.

It is important for the Government that the investments partially return into the budget in the form of tax payments. But there are not just purely military factors: more reliable life cycle support and the shortening of logistic routes in case the country would – God forbid – get into a conflict. In crisis, we may not rely on anyone to deliver anything at their expense. And we need to be able to provide maintenance and servicing of equipment on our own.

Lifecycle support at home makes acquisitions cheaper in general, not just in crisis situations. Defence acquisitions provided by the domestic industry have additional indirect positive effects: they keep qualified positions and create new ones, and



stimulate research and innovation.

**Financing is however not just a matter for the MoD. With your permission, let me get back to your opening comment about the survey that alerted to the problem with getting loans.**

The survey brought about concrete documents of problems the Czech defence and security industries face getting loans, as well as when opening accounts or even in common payments to foreign countries, usually in banks with foreign owners. Those banks in many instances assessed certain Czech businesses in a different way than the competitors of the industries domiciled in the same country as the bank headquarters. That is also reflected in the Czech supplies to Ukraine. I hear from those companies on the home front that they have the will, technologies, workforce and naturally the sales. They could invest into increasing production capacities. But banks put obstacles in their way. If there is hidden competition behind that, it is necessary that the whole European Union learns about this problem.

**What do you intend to do with that?**

We agreed with the Minister of Finance that we will raise the topic in our discussion with our European counterparts. He appealed on his counterparts with a letter already at the end February to allow for a greater participation of finance institutions and private investors in general in financing defence industries and urged them to do away with complex regulation and to unblock private financing of defence. Likewise, the European Investment Bank could step up its involvement in funding the defence. The EIB's position is that defence industry is very difficult to finance, which in turn affects private banks. While the European Union identified the defence industry as necessary, strategic and critical for maintaining defence capability, European Investment Bank should loosen its credit policy along those lines. Aggression against Ukraine showed the problems of the European defence industry in full monty. Hence we must seek a Europe-wide change, and our Government will strive to push for a reasonable framework



for that. Producing further heaps of paper on what does not function will not bring about any changes, nor will general proclamations. It is essential to agree as soon as possible on practical steps. First of all, we are seeking clarification of the interpretation of taxonomy and ESG reporting on defence industry by financial institutions, and including defence financing into the social pillar of the taxonomy in the future so as to send a clear signal to investors that the defence industry is a socially responsible investment.

We are of the position that the defence industry is not just a regular industry – it has a strategic importance, which is why the Governments should have a greater room in contract placement, of course while maintaining maximum transparency. But the Armed Forces and defence cannot be outsourced. On the other hand, states are not closed pools. Only big countries are able to produce complex products, which includes weapon systems, from A to Z. We can be proud that as a medium sized country we are still able to develop jet aircraft, and it is not just a hollow pride. Aviation is today a critically important technology development driver thanks to the application of digitalisation, artificial

intelligence, sensor development and human machine cooperation. Nevertheless, the production of a single type of aircraft involves hundreds of subcontractors spread across many countries.

It is necessary to seek models generating a good balance between competition and cooperation. A good example is the cooperation of Elta Systems of Israel with Retia company on the delivery of the MADR mobile air defence radar. Projects like these also represent a transfer of technology potential for us. Another way ahead are common acquisitions by multiple states. International consortia with governmental guarantees will also play a role in defence research in Europe. That is the path we should consider pursuing in the future. That can potentially bring huge opportunities for the nations on NATO's eastern flank along with Ukraine. Joint course of action bears an untapped potential of economies of scale, but also a significant improvement of interoperability. And we will do our best for the Czech defence industry not to be left aside.

*Miloš Soukup thanked for the interview  
Photo: Jan Schejbal*



# DO THE BANKS DISRESPECT THE GOVERNMENT AND THE MINISTRIES?

The war in Ukraine has been going on for more than two years and some European and corporate institutions still do not consider the defence industry to be an important element forming the basic building block of the defence capability of the European Union countries. European commissioners compete with each other with calls for arms factories to produce as much ammunition as possible for the Ukrainian Armed Forces. But at the same time, the same people demand to exclude manufacturers of weapons and ammunition from the subsidy for the purchase of electric cars. As a representative of the defence industry, I want to know why this discriminatory requirement was included in the subsidy conditions. Or should we interpret it as a message: "We don't want arms and ammunition to be produced in Europe?"

In 2021, the DSIA CR conducted an anonymous survey within the Czech defence industry on how the banking sector approaches this industry. This survey showed that since around 2015, banks have been applying a restrictive policy towards Czech companies operating in the sphere of military and security equipment. Defence industry firms had a legitimate feeling of discrimination making it difficult for them to operate and export. At first, it was a question of denying the availability of some banking instruments necessary for foreign trade, such as bank guarantees and letters of credit for certain territories; later it was also a question of refusing ordinary transactions, and finally cancelling bank accounts. Since 2018, companies operating in the defence and security industry and possessing all the necessary permits and concessions have had banks refuse to open accounts for them, de facto preventing them from doing business in this industry. The banks did not care at all that these applicants had been granted a permit for foreign trade with military material by

the Ministry of Industry and Trade and that the members of the statutory bodies held a security clearance certificate issued by the National Security Authority. The banks completely ignored the decision of the Czech authorities on the granting of an export license, the issuance of which was agreed to by the Czech Intelligence Services and the Ministry of Foreign Affairs, and these businesses were assessed by their own employees, who do not have any security clearance certificate from the National Security Authority. It often happened that bank officials refused to make payments for transactions that were approved by the Czech authorities. At the conclusion of that study, it was stated that: "The deterioration of conditions in the Czech Republic is forcing some manufacturers to consider establishing subsidiaries abroad, as many barriers in the sphere of production and international trade will disappear. However, this trend will endanger the defensive capability of the Czech Republic, as we will have no strategic manufacturers on our territory, which may backfire in times of crisis".

This crisis occurred in the morning on February 24<sup>th</sup>, 2022, with Russia's attack on Ukraine. The importance of the domestic defence industry grew, and Czech manufacturers began to play a significant role in Ukraine's ability to defend against the Russian attack. We expected a rapid change in the banks' policy towards the defence and security industry. Despite all the assurances from the senior representatives of the banking sector that there is no discrimination against our industry on their part, we did not get the feeling that the situation would improve. That's why, after two years of the war in Ukraine, we conducted an anonymous investigation again. What did it show? Here are some of the responses:

"ČSOB refuses to finance our activities in any way, KB does the same. Česká spořitelna refused financing because the territories where our products are used (after approval of export licenses) do not correspond to the bank's internal tables."

"Some time ago, Cifftin terminated my contracts on the grounds that my business acti-

vities are weapons, ammunition, explosives, which they said they had to do because it was a condition of their correspondent bank". "ČSOB requires additional documentation of ALL documents related to the business case (according to the law, it has the right to verify the payment, request an invoice, but they require everything, including licenses, delivery note, VDD, etc.). They are threatening to withhold future payments."

"Constant repeated explanations of foreign incoming payments, documenting licenses checked and issued by several ministries were not enough for them..."

We could continue like this. Shooting ranges and stores of weapons and ammunition are refused to set up a payment terminal; there have been cases where members of statutory bodies had problems even setting up their private accounts. We have also reported cases where one insurance company, referring to its code of ethics, terminated the insurance contract with a company that expanded civilian production to include the production of military equipment. We summarized the survey results in the following text:

### Summary

Here are complications recorded by the interviewed companies of the defence and security industry in the current, everyday practice with their banks in connection with operations including military material (generalized):

- In accordance with their credit policy (territorial and client), banks independently decide on the "suitability" of the transaction, even if the MIT license is issued for this transaction. Taking into account the client's credibility and historical ties, the bank will decide on the business case after requesting, for example, additional documents. In other words, the bank does not respect the decisions of the Czech state authorities and the government's licensing policy but creates its own policy. Despite the fact that the process is lengthening, there are significant differences in the approach of banking groups to individual territories and within the banking groups themselves. This is quite well known and companies have learned to direct their requests accordingly. The condition is, of course, a sufficient history of the client with

the relevant bank. Companies without a history are out of luck.

- Regarding internal corporate policy, ČSOB (owned by the Belgian KBC Group) closed the accounts of one key Czech manufacturer. It results from the survey that ČSOB clearly applies the strictest approach.

- With the application of sustainability policy, banks refuse to credit smooth payment for military material. And that regardless of whether it is lethal or non-lethal military material. It happens with some companies that it is up to several cases per week. ČSOB always applies a strict refusal, for payments from Ukraine it used to be also KB, and from the beginning also ČS (we have no information about the others). In these cases, banks (either the client or their correspondence) usually look for a way to meet their internal compliance requirements with regard to the relationship with the client. E.g. by requesting additional documents (invoice, order, license, EUC...) usually with a deadline of 5 working days.

If the bank deadline is not met, the credit is rejected and the payment returned. In these cases, one very important Czech manufacturer has repeatedly encountered a situation where the payment was refused, but the customer waited several weeks for the refund to be credited to his account.

- Sometimes producers encounter a refusal to make a payment at correspondent banks (ERSTE Bank, Raiffeisenbank, ...). Despite the fact that they have to submit a number of documents to correspondent banks, the content of which is very sensitive. Especially when it comes to trade in Ukraine.

- Banks have a similar approach in cases of issuing bank guarantees and trade financing (mainly documentary letters of credit). Several Czech manufacturers confirmed this fact. Bigger and smaller.

- There is no information on banks' approach to investment financing in the sphere of military equipment production. The reason may be that Czech manufacturers have already given up trying to negotiate with banks about this financing, considering

their previous negative experiences.

### Conclusion

From the information obtained, it is evident that the situation will not improve in any way. On the contrary, companies have the impression that it is getting worse. The opinion that the situation is better sometimes appears in the media. For example, CSG spokesperson, Andrej Čírtek stated in a published interview: "It seems that the situation with the banks in individual approaches is improving slightly, but it is not yet evident at the corporate level. However, the size of the company allows for manoeuvring and the choice of the appropriate variant of the bank for the respective operation." However, anonymous questioning did not confirm such claims. The survey shows that the banks' negative approach towards the defence sector extends across the countries of the European Union. Companies have learned to respect this fact, but it complicates their work, and above all, it hinders the further expansion of the production capacities of the defence and security industry.

It is absolutely necessary to get out of this vicious circle. Without a strong domestic defence industry, our country will not be able to defend itself. And the industry has no chance to develop without quality banking services. It would certainly be beneficial if the Law on the National Development Bank made it clear that it should focus on financing the development of the domestic defence industry. This would create healthy competition for commercial banks. But the most important thing is that the Czech government has legal means to force banks operating in the Czech market to provide their services in a non-discriminatory manner. Skin colour, religion, sexual orientation or line of business should not matter. If the government authorities decide they want a transaction to take place, a bank clerk can't ignore it. It is up to the government and parliament to prepare such laws that will ensure the further development of the defence industry. Providing basic banking services is certainly the thing.

*Jiří Hýnek, the President of DSIA CR*  
Photo: DSIA CR



# CZECH ARMED FORCES MODERNIZATION

## AS A NECESSITY FOR ENSURING THE CZECH REPUBLIC'S DEFENCE POSTURE DEVELOPMENT PROSPECTS OF THE CURRENT STATUS

The readiness of militaries to win armed conflicts have never been and will never be based on the commanders' assumption that their forces are simply stronger than enemy forces. Victories in individual battles or wars are usually the outcome of strategic decisions taken by political leaders, embraced by the whole society and applied by its armed forces very well in advance. To inform such decisions, the armed forces, and primarily its command corps, are asked to provide a high quality and precise description of the assumed way of future warfighting. That is the key for the military to be able to take relevant measures for its flexible and continuously innovative development, and come up with and apply winning military doctrines and build adequate combat capabilities. For this purpose, modernization of Czech Armed Forces is essentially a process that enables to prepare both the armed forces itself and indeed the whole society for defending our statehood and our values.



The key avenues and elements of the Czech Armed Forces' modernization are presently laid down in strategic policy documents – the Defence Strategy of the Czech Republic 2023, and the Czech Armed Forces Development Concept 2035. We intend to keep the whole modernization effort abreast with the trajectory of technical, technological and global societal developments. In order for us to achieve that, we have developed a set of analytical studies on future warfighting. For own needs as well as for expert community and the general public, we summarised the analytical output into the recently published document called “the Czech Armed Forces Future Warfighting Vision after 2040”. The document first outlines the

assumed development of the future security environment, operational environment and battlefield characteristics after 2040. Then it offers a prognosis of the Czech Armed Forces activities as per combat functions and analogically defines the assumed needs for the Czech Armed Forces' military capabilities after 2040. The Czech Armed Forces are already taking steps towards achieving those capabilities in this year through updated subordinate development concepts.

I want to emphasize that a complex development of the armed forces includes first and foremost processes leading to hiring and maintaining adequately educated and competent

personnel. Without providing continuous specialized education, qualification training for individuals and effective collective training, any attempts of modernization are doomed to fail and will never generate adequate defence posture for our homeland.

Defining the current status is an inherent part of any modernization process. We therefore need to take into account, that the Czech Armed Forces have been long underfinanced by as much as 50 %, which brings additional challenges for the preparation and implementation of its modernization. On that account, the increase of the defence budget to 2 % GDP starting from 2024 and its enactment for the years to come was one of the key factors of efficient implementation of modernization. At the same time, it is one of the vital strategic solutions our society has to make to create conditions for our future resilience to both military and non-military crises. However, we must also admit to ourselves that a 2 % GDP increase of the defence budget will only generate a complex impact on our combat capability in the long run.

The Czech Armed Forces modernization is therefore planned to deliver an effective and modern armed forces, capable of countering aggression by a technologically advanced adversary and provide the management of minor military and non-military crises. Another strategic decision taken to give the Czech Armed Forces an edge in the future battlefield was the signature of the contract of acquisition of the F-35 fifth generation multipurpose tactical

aircraft. In fact, we intend to use this weapon system as a technological generator of the modernization process of the entire Czech Armed Forces. This article covers modernization requirements of units operating primarily (but not exclusively) in the land operational domain, while the development of the air superiority forces will be discussed in the upcoming issue of the quarterly magazine.

#### **Modernization of forces operating primarily in the land domain**

The new NATO multi-domain operations concept requires innovative approaches. In order to be able to participate in simultaneous combat activities in all operational domains, the Land Forces units have to progressively build an adequate organisational structure, have a fully digitalized command and control system with functional AI elements and master interoperable weapon systems. It will be essential to stand ready to project force over long distances using high-precision weapon systems characterized by AI algorithms and a high autonomy. Mastering the land domain will partially depend on early warning capabilities provided by elements which operate in different domains. All these elements need to be topped with a complex, real-time situational awareness and the ability to coordinate the activities with other Czech Armed Forces or NATO elements operating in other domains.

#### **Mechanized forces**

One of the primary targets of the modernization of the Land Forces is the building of a heavy brigade in accordance with NATO standards,

the increase of the rapid deployment capability and combat effectiveness. This also includes the modernization and acquisition of new armoured vehicles, tanks, artillery systems and other equipment.

Infantry fighting vehicles remain a fundamental element of modern combat units and their task is to provide fast and effective support to the infantry in combat. Due to the ever-developing threats and technologies, it is necessary that the new IFV are able to meet both current and future challenges.

In May 2023, the contract for the acquisition of 246 pcs BVP CV-90 was signed. The vehicles are to be equipped according to the needs of the current battlefield, but have a modular design for optional implementation of innovative elements, not only in the field of lethality but also in active and passive protection of the troops. The main aspects of modernization include increased mobility, protection and combat capabilities as well as maintained relevance through continued modernization. Various capabilities are being discussed, such as the equipment with one's own UAV system or, by contrast, both passive and sophisticated electronic C-UAS systems. In the context of increased mobility, new vehicles will be equipped with high performance engines and more resilient platforms, which will enable faster movement across various types of terrain. This is essential for rapid deployment and combat readiness.

Modernization of IFVs also includes integration of modern communication and information systems (CIS). This shall sharply increase the crews' ability to communicate, cooperate and share situational information and data. CIS modernization inherently includes increase of the overall resilience of the system. The result is a modern, fast and robust command and control system.

#### **Tank units**

The Czech Armed Forces take a similar approach to the modernization of tank units as they do to the modernization of IFVs. In 2023, the Government of the Czech Republic authorized the Minister of Defence to hold negotiations with the Ministry of Defence of Germany



on a joint acquisition of modern Leopard 2A8 battle tanks. This project, too, was prepared with an emphasis on modern technology, not only in the field of target elimination and self-protection in the battlefield, but also modern communication and information systems and active and passive protection. Similarly to the new and modern IFVs, which will begin their operation in the Czech military training areas as soon as 2026, the first modern tanks are also to be delivered in the second half of the decade. Furthermore, the implementation of German Leopard 2A4 tanks is an advantage which will enable smooth transition to a new organisational structure, training, maintenance, doctrinal use and logistic provision of NATO tanks.

### Artillery

Artillery, as a part of the Land Forces, provides fire support to units. In the recent years, the Czech Armed Forces has been focusing on modernising the artillery through purchasing new platforms and integrating new technologies. The objective is to increase effective range of fire, fire accuracy and mobility. These objectives will be reached by acquiring modern artillery equipment and by acquiring and using advanced sensors.



This will expand the capability of target detection in all radiation spectra. Subsequently, integration of correction fuses or smart ammunition into an already established artillery gun will expand the ability to eliminate hostile targets at maximum ranges and with high precision and, therefore, with minimum collateral damage. Analytical tools and support software shall be implemented into the processes of staffs or artillery units to accelerate data analysis and support decision-making of artillery commanders. Training of personnel, modernization of

communication and information systems, including overall implementation of an automatic fire control system into the armed forces' command and control system, will increase the efficiency of combat management processes. A key factor of modernization is and always will be cyber security and protection from threats to the security and integrity of data.

### Combat Engineers

The Land Forces modernization naturally applies to the Engineer Corps as well.





Essentially it involves making key steps to ensuring individual roles of combat engineer support and general engineer support. That will provide the often frequented and increasingly imperative requirement for high mobility and manoeuvrability of combat forces, same as anti-access/area denial and force protection in the future battlefield.

The development enabling a quick provision of freedom of movement of friendly forces in the battlefield translates into the procurement of advanced bridging systems with required capacity about 80 tons and minimum bridging span of 12 metres. This capability is developed through the procurement of modern road clearing systems enabling the clearing of both explosive and non-explosive roadblocks.

Quick restriction of the opponent's freedom of movement in the battlefield is developed through the procurement of advanced anti-tank mines with remotely controlled activation and deactivation. This capability is further developed through the purchase of sophisticated road-blocking systems remote mine-field laying.

A more effective building of protective structures in the battlefield will be provided through the acquisition of modern high-performance earthmoving machinery. All newly purchased engineer vehicles and engineer machinery are required to have a ballistic protection of the operators.

Modernization in the domain of general engineer support will be provided through the acquisition of a modern floating bridge with the required bearing capacity and minimum length of 150 metres. At the same time, the modernization of this role envisions the modernization of armaments and robots used by the forces for the disposal of explosive devices.

#### **CBRN defence**

The development of the CBRN Defence Service goes hand in hand with the modernization of the Czech Armed Forces' main combat forces. The development responds to the increasing complexity of the future combat systems and the need to protect them against the effects of weapons of mass destruction. This practically involves the modernization of decontami-



nation procedures without detrimental side effects as well as development of technical systems and methods sensitive to combat equipment and sensitive materials, which will provide an effective personnel decontamination at the same time.

Modernization of obsolete instrumentation and military equipment takes place continuously. An important step in this process is the performed upgrade of the automobile laboratory and the starting of the research project to deliver another, already 4<sup>th</sup> generation mobile labs. Acquisition of instrumentation and equipment for detection and identification focuses on increasing the speed and discrimination of detection of individual hazardous agents while maintaining the usability of the equipment in combat conditions.

In the domain of individual protection means, the development continuous of replacement of the currently used OM-90 mask with an advanced means of protection of respiratory system with panoramic visor meeting the requirements for contemporary field combat equipment. Also, high priority is attached to the procurement of sufficient stocks of protective isolation suits for specialists and the all-arms filtering protective overcoat. The CBRN defence service also presently tackles challenges associated with reintroducing the Collective Protection (COLPRO) capability.

In the future, there are plans to procure stand-off systems for the detection of chemical war-

fare agents and enhancing the capability to identify and analyse 4<sup>th</sup> generation (novichok) warfare agents. For the performance of monitoring missions, we will develop and prefer the utilisation of autonomous or semiautonomous robotic systems.

#### **Cyber forces, robotisation and electronic warfare units**

Robotisation of the Czech Armed Forces is a continuous process that caters for the development of technologies, needs of the forces and requirements of Allies. The Czech Armed Forces' strategic interests include the building and development of in-house scientific capacities in the domain of introduction of emerging and disruptive technologies, especially in cooperation with the University of Defence, because the Czech Armed Forces' requirements may vary in some instances from the needs of civilian organisations or components of the Integrated Rescue System.

In the future, autonomous vehicles in the Czech Armed Forces can provide transportation of supplies, ammunition and equipment into the battlefield to quickly and efficiently resupply forces with a lower risk for human operators. Robots equipped for medical evacuation may enter combat zones and safely transport wounded soldiers low threat areas or to first aid points.

Modernization of the Czech Armed Forces, particularly in the case of the Czech Land Forces, can however not be understood solely as

a replacement of old equipment with new robotized systems. An important role plays the change of mindset, the command and control system, the use of artificial intelligence algorithms in the commander's decision-making process (process speed/loop length, data processing, elimination of risks that those technologies can bring) and their employment in the multi-domain operations concept.

Another important aspect of modernization is the strengthening of cyber defence and electronic warfare. In the digital era, cyber security is key for the protection of important information and communication infrastructure against the attacks by hostile actors. Modernization, including the Land Forces, also involves investments into sophisticated cyber defence and electronic warfare systems that enable the detection and repelling of cyber attacks and ensuring security of communication networks.

The Czech Armed Forces acquires advanced electronic warfare systems used for monitoring, detection and jamming of the adversary's electronic systems. Those systems include electronic jammers that generate jamming pulses and interfere with communication and navigation of the opponent's systems. They are used for force protection and for intruding hostile communication and control systems. In addition, the Czech Armed Forces procures electronic surveillance systems used for obtaining information on the enemy's electronic systems. Those systems enable monitoring of frequencies and patterns employed by the enemy. Newly introduced systems include the STARKOM and DPET manufactured by Czech companies. At the same time, electronic protection systems are acquired to provide the protection of own communication and information systems against electronic attacks. That involves encryption, authentication and ensuring data integrity so as to provide security and protection of sensitive information. Last but not least, the Czech Armed Forces procures electronic surveillance devices to be used for monitoring electronic activities of opposing forces.

Electronic warfare systems are critical for ensuring electronic superiority and protection of own communication and information systems. The Czech Armed Forces invests into those sys-

tems in order to have the capability to effectively respond to electronic threats and secure a strategic advantage in the modern battlefield.

### **Military medical support**

The Military Medical Service has modernization plans as well. The changes in warfare and indeed the development and availability of new technology reflect in the need to apply new operating procedures. All of that, including the reflection on the lessons learnt in the conflict in Ukraine, shape the direction of the future development of the service. The future of the MilMed Service is a modern and sustainable pre-hospital care, much like the provision of continuous preventive and labour-medical service in garrisons. The Service also focuses on the provision of relevant support to two brigade task forces, where both Role 2 field medical hospitals and the strengthening of field medical stations and medevac capabilities play an important role. Another specific area under development is the biological protection, where modernization of both the existing infrastructure and its mobile components is envisioned. Czech industries will be involved in the projects as part of modernization of the treatment and evacuation system. In line with CAFDC 2035, the service intends to make a greater use of telemedicine, robotization and biosensors.

### **Logistics**

Along with the introduction of new technologies and sophisticated systems into the Czech Armed Forces, it is equally important to acquire relevant transportation and support equipment. The Czech Armed Forces uses the well-proven TATRA platforms. Newly introduced into the inventory are the T 815-7 6x6 platform trucks and T 815-7 Multilift MSH 165 carriers replacing obsolescent vehicles from the past century. In the years ahead, the Czech Armed Forces is going to introduce a multipurpose T 815-7 8x8 truck to carry personnel, bulk cargo and ISO 1C containers. That vehicle will also serve as a prime mover.

The new equipment nevertheless also claims new means of road and rail transport. A low-bed semitrailer with prime mover with a 50-ton payload was introduced to use in the last year, which will also enable the transportation of the new BVP CV-90 tracked infantry vehicles. Given

the process underway of replacing the primary weaponry in the 7<sup>th</sup> Mechanised Brigade, there is acquisition process underway for a prime mover with semitrailer with higher payload to transport new main battle tanks weighing roughly 70 tons.

In the context of progressively increasing requirement for jet fuel as part of provision of the Host Nation Support (HNS), the need arises to increase the fuel transport and storage capacities. A tender will be launched to procure rail tank cars with capacity of 80 m<sup>3</sup>. That will significantly increase the jet fuel transport capacity as opposed to the current status. The acquisition of these modern cars will allow the Czech Armed Forces to continue to adhere to NATO standards and provide airbases with fuel at least in two different ways. In case of using a single fuel in the battlefield, these mobile capacities can also be used as a mobile storage for a field aerodrome and for ground vehicles.

Concurrently, contracting for major repairs includes the training of maintenance specialists of higher level of maintenance, and some important projects even include mentoring assistance in the form of mobile teams. There are future plans for using virtual reality, such as VR headsets, to augment the possibilities of technical assistance for maintenance technicians.

### **Signal Corps and informatization**

Development in this domain is absolutely essential for the provision of continuous communication and information support to the command and control system at all levels of the Czech Armed Forces. Subject matter modernization and newly launched projects are designed to deliver and integrated information environment in the Czech Armed Forces and the MoD to the effect of digitalising processes and streamlining data and information management with the use of Big Data administration technologies, building new data centres, application of artificial intelligence and the like. As a matter of priority, all deployable services are planned to have a robust communication and information support compatible with NATO in accordance with the Federated Mission Networking (FMN), realisation of MILSATCOM and TACSAT projects, procurement of radios and other integration equipment to attain effective Command, Control, Communications,

Computers, Intelligence, Surveillance, Target Acquisition and Reconnaissance (C4ISTAR).

A big challenge in this domain is the building of highly mobile and highly resilient new generation command posts that will answer the present technological trends and reflect the lessons from the conflict in Ukraine.

### Training

The modernization of the Czech Armed Forces is linked to the development of training and modern doctrines. Advanced military equipment requires a high level of expertise and specialization of service members. That is why investments in education, training, and building of capacities of military training centres are planned.

The Czech Armed Forces is preparing to modernize the training of their service member via investment in modern technologies such as simulators and virtual and augmented reality because we are aware of the fact that these technologies will allow highly effective, almost realistic and at the same time interactive training in various scenarios and diverse conditions in future battle environments. Another objective is to focus on individualized training, which means that the training will adjust to the needs of specific service members. That can ensure the variability of training which will be effective for each service member taking into account each service member's specifics. Furthermore, the Czech Armed Forces plans to use multimedia educational materials which include interactive presentations, videos, e-learning courses and online tests. These materials can be accessible from various devices, including portable devices, and will enable service members to study on their own and revise information and procedures. Modernization enables the Czech Armed Forces to improve the training of their service members to face current challenges and increases their effectivity and ability to perform their missions.

### Possibilities of cooperation on modernization of the Czech Armed Forces with the industry and the academia

The sustainability and autonomous functioning of forces and assets is key for the capabilities of the armed forces. We are therefore interested in strengthening the ties with national industry

capacities in terms of gear, materiel supply and stock generation and replenishment. Regarding modernization projects, a very important aspect is the supply of the system as a whole. Therefore, we need strong partners which offer comprehensive solutions and lifecycle support in periods of both peace and crises. That is why we are striving to define competitive products which the national industry is able to produce.

The incessant progress in the field of the military is mostly based on the scientific methods. The Czech Armed Forces step up activities in the field of research, development and innovation and the necessary cooperation with the academia. On the April 25, 2023, the Memorandum on Cooperation on Disruptive Technologies for use by the Czech Armed Forces" was signed between the Czech Armed Forces and the Czech Technical University. This memorandum defines the involvement of the Czech Technical University in disruptive technologies projects and the designing of their implementation into the armed forces. We are planning to begin cooperation with other universities.

We are aware that the systemic and continuous development of technological advancement of the armed forces is a condition necessary to maintain their competitiveness in future battlefields against a technologically advanced adversary. In order to strengthen the cooperation with the academia, the armed forces created their own innovative organizational component used for constant implementation of emerging and disruptive technologies. The Czech Armed Forces Development Concept mentions the ambition to create experimental units which will test technologies and concepts in practice. Our aim is to accelerate the innovation of organizational structures, internal processes and arms while leveraging on the potential of the industry and the academia. We are interested in developing and implementing technologies which will give the Armed Forces an operational edge over the adversary, facilitate and rationalise routine administrative tasks and enable maximization of the development of the potential of individuals and units in the preparation for conducting combat activities.

*BG Petr Milčický*  
*Director MoD CDD*



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# MODERNIZATION OF THE CZECH ARMED FORCES AND INVOLVEMENT OF THE CZECH DEFENCE AND SECURITY INDUSTRY

The current state of involvement of the Czech Defence and Security Industry and the support of the MoD CR



In the context of the Russian invasion to Ukraine and the pressure, especially from the US, to meet the NATO commitment to spend 2 % of GDP on defence, the budget of the Ministry of Defence has been significantly increased for 2024. This resources needs to be transformed in acquiring specific capabilities, which CZ needs to defence its territory and fulfil its international commitments. Lately, the Czech Ministry of Defence decided to acquire infantry fighting vehicles from Sweden and fighter aircraft from the US.

The acquisition of military equipment from abroad puts considerable pressure on the security of supply, where the basic requirement is for military equipment and MRO capacities be delivered at the place, time

and volume required by the Czech Armed Forces, especially during the crisis.

To this end, in strategic and particularly significant projects, MoD requires that, primarily for fundamental security reasons, domestic industry to be involved, e.g. in servicing and repairs or the production of spare parts. By increasing the capacities of the domestic industry we are also creating and "arsenal" of know-how and competencies for crises scenarios, where the deliveries from abroad may be unavailable for various reasons. One of the highest added values is the integration of the Czech industry to the supply chain of foreign companies, which can leads to industrial and strategic interdependence between CZ and its allies.

Czech companies, as well as research organisations and universities, already participate in the industrial cooperation programmes within the framework of acquisition projects for the purchase of new CAESAR howitzers, SHORAD, MADR or already mentioned IFVs as well as F-35 fighter jets.

Also, to support our industry, Industrial Cooperation Division organizes industrial days, which are events aimed at the presentation of the Czech industry towards the military. We conducted more than 60 of these industry days last year. It is a great way to increase the knowledge about the current direction of defence industry and technological trends. The industry receives the highly-valued feedback on its products from the end-users.

The Czech Ministry of Defence provides support for export activities of Czech defence and security industry which is a key tool to help develop competitiveness, technological development, capabilities and capacities of domestic industry. Up to 90 % of the Czech defence industry's production is meant for foreign markets, and exports are therefore a key indicator of the good condition of the Czech industry and its capabilities to ensure security of supply. The primary tool used by the Industrial Cooperation Division for the implementation of pro-export activities in support of the Czech defence and security industry is the Promotion Program of Economic Diplomacy (PROPED). Through this financial instrument, in cooperation with the Czech Ministry of Foreign Affairs, the Ministry of Industry and Trade and industry associations, it manages to develop existing and establish new export opportunities for the Czech industry. This includes, for example, the establishment of new company branches abroad. Building business partnerships can lead companies to be integrated in the supply chains of major players in the defence industry, which brings further added value to their growth. Pro-export activities must respect the official framework of Czech foreign policy in relation to the export rules of military equipment and this policy is fully respected by the MoD. The PROPED instrument is used, for example, to finance exhibition space at internatio-



nal arms fairs. Czech companies appreciate this very much and consider it a major benefit, especially if they are only starting out on a given market and initial investments are costly for them. In this way, business and incoming business missions are also supported and implemented. This financial instrument is complemented by another important aspect, namely official bilateral meetings with foreign delegations or large companies, in which the MoD provides its support to companies and opens the door to their visibility and important contacts on the foreign market.

Thirty activities supported by PROPED are planned for implementation in 2024. Those include international defence and security exhibitions (e.g. Farnborough, Indo Defence, World Defence Show, EUROSATORY, Singapore Air Show, Vietnam EXPO, DSA, CANSEC), foreign industry days and incoming business missions.

#### **Support strategy of the Defence and Security Industry in "G to G" projects**

The Intergovernmental Defence Cooperation Agency (AMOS) plays a crucial role in supporting export of the domestic defence industry abroad and thus ensuring the long-term sustainability and competitiveness of Czech products in global markets. The Agency acts as an important instrument for

project implementation on the basis of Government-to-Government (G2G) contracts. In December 2023, the Governments of the Czech Republic and the Republic of North Macedonia signed an agreement to carry out repairs of aeronautical equipment, in particular North Macedonian Mi-series helicopters. The agreement provides the framework and support for the contract negotiated between the Ministry of Defence of the Republic of Northern Macedonia and Czech state enterprise LOM PRAHA for the provision of the above-mentioned services. This is the second project between the two parties, with the implementation of the first agreement now underway to mutual satisfaction

AMOS, however, does not limit its activities only to Europe. We also see great potential in Latin America, Africa and Asia, for example. In some places, specific projects are currently being discussed, but unfortunately they cannot be further specified at this time, in order to protect the negotiation process.

#### **Perspectives of involvement of the Czech Defence and Security Industry and support of the Ministry of Defence of the Czech Republic**

As already mentioned, the priority of Ministry of Defence in all modernization projects



is to ensure the security of supply, which is considered an essential security interest. The goal is maintaining and further development of the defence and security industry in order to support the deployment of the Armed Forces. This is a key aspect especially when facing the threat of long-lasting high intensity conflict with a technologically advanced adversary. Historical experience, such as the COVID-19 pandemic, has shown, that in the event of a border closure, supplies from abroad cannot be fully relied upon.

That is why we will continue to seek the involvement of the Czech defence and security industry in the current modernization projects, such as the future acquisition of a main battle tank or a medium transport aircraft. It is already a common practice that Czech companies and research institutions participate in the provision of service & maintenance, production of spare parts, and in some cases also in research and development of systems that will enable the modernization of currently acquired military equipment in the horizon of the next few years.

**Support and involvement of small and medium-sized companies, there are approx. 120 companies that, with their membership, are waiting for the opportunity to apply themselves into these projects of the MoD and other departments - for you, Madam Chief Di-**

**rector, a very important topic that most companies are waiting for**

Czech defence industry landscape is predominantly composed of small and medium enterprise. Today, many SMEs are already involved in acquisition and modernization projects, but it is always up to the judgement of the supplier of the final product whether to include it in their supply chain. The Industrial Cooperation Division has organised a number of industrial days, in the framework of which Czech entities were connected with foreign suppliers. This has led in many cases to specific projects of cooperation. The role of industry associations such as Defence and Security Industry Association, Aerospace Industry Association or Chamber of Commerce is absolutely key in this endeavour.

The Ministry of Defence actively supports the participation of Czech SMEs in calls and projects of the European Defence Fund (EDF). Within the EDF, it is typical that the most important European suppliers of military technologies participate in the projects, therefore participation in consortia may mean establishing further cooperation with, for example, French or German primes. The participation of SMEs in the consortia is also bonified within the review of the proposals, which motivates big Western corporations to include SMEs from the CEE region. A number of such projects are

directly related to the modernization projects of the Czech Armed Forces, where projects such as precision-guided munitions for howitzers or ballistic protection for tanks are being addressed within the EDF. Last year were launched the NATO Innovation Fund, as well as the DIANA, NATO initiatives that are also open for participation of Czech entities, especially start-ups. The Industrial Cooperation Division actively communicates opportunities for industry on its website (<https://spsp.army.cz>) and also regularly organizes information days for the industry.

Another interesting opportunity for the Czech industry, which is not being used enough, is the NATO procurement agency - NSPA. As a result of the radically worsened security environment and the increasing budgets of most of the NATO countries, joint procurement of military equipment is becoming a clear trend. NSPA was set up precisely to coordinate joint procurement for NATO member states, and it is almost dominant within the Euro-Atlantic area in this role. It is a great pity that our industry does not take more advantage of the opportunities offered by NSPA, even though it has a greater chance of success in its tenders than in the tenders issued by individual nations.

One of the new tools of the Ministry of Defence is the PRODEF programme of research, development and innovation, which aims to support the domestic defence industry. The primary intention of the programme is to enable the support of Czech entities in the EDF so that more and more entities could apply for development projects where a certain additional payment is required. PRODEF can respond effectively to this requirement. On the other hand, for a long time there have been well-founded arguments that the MoD does not have a programme focused on public challenges that would directly respond to the needs of the Czech Armed Forces. For this reason, PRODEF in its second sub-programme will focus on public challenge that will enable not only the development of the Czech Armed Forces in the area of disruptive technologies, but will support the growth of know-how and capabilities of the domestic industry.



# THE CZECH REPUBLIC CELEBRATES 25 YEARS IN NATO

On the occasion of the celebration of the 25<sup>th</sup> anniversary of the Czech Republic's joining NATO, a day-long conference entitled "Our security cannot be taken for granted and there is no prosperity without security" was held on March 12<sup>th</sup> in the Spanish Hall at Prague Castle, organized by Jagello 2000, led by its Chairman Zbyňek Pavlačík, who officially opened the event.

At this prestigious conference, which has been held since 2014, top political representatives and leading security experts met to not only evaluate the past period but especially to outline plans for further progress in ensuring the defence and security of the Czech Republic.

The introductory morning part was opened by the former Chief of the General Staff of the Armed Forces of the Czech Republic the Army General (retired) Jiří Šedivý, guarantor of the Security and Crisis Management program of the CEVRO University, who commanded the Czech Armed Forces 25 years ago. Other speakers were Prime Minister Petr Fiala, the Minister of Foreign Affairs Jan Lipavský, the Minister of Defence Jana Černochová, the former NATO Secretaries-General Javier Solana (via online greetings) and Lord Roberston, an analyst and the Chairman of the Board of Directors of the Association for International Affairs Vojtěch Bahenský, a government adviser for national security Tomáš Pojar, the Chief of the General Staff of the Czech Armed Forces, Lt. Gen. Karel Řehka, the Senior Director of Internal Security and Police Education at the Ministry of the Interior of the Czech Repub-

lic Jan Paďourek, the General Director of the FRS CR, Lt. Gen. Vladimír Vlček and the Police President of the Police of the Czech Republic, Lt. Gen. Martin Vondrášek.

On this occasion, a formation of military aircraft of the Czech and allied German Armed Forces flew over Prague. The Armed Forces timed the flyover so that they appeared over the Charles Bridge at half past ten. The formation consisted of three JAS-39 Gripen fighter aircraft from the 21<sup>st</sup> base of the Čáslav Tactical Air Force, two Eurofighter Typhoons of the German Armed Forces, and an Airbus A-400MS Atlas transport aircraft.

The participation in the conference was overwhelming, the invitation was also accepted by the former American President

Willam Jefferson Clinton (42<sup>nd</sup> president in 1993-2001), who in the afternoon, after the speech of President Petr Pavel, paid tribute to the Czech Republic for the aid to Ukraine, as it was the first of all NATO member states who provided the aid and continues to do so with the support of other Alliance states.

The whole topic of the conference was, of course, about security, which is really not self-evident, and most of the speakers did not forget to say that every citizen of the Czech Republic must take security seriously and start mainly with themselves.

*Author: Šárka Cook*

*Photo: Ondřej Charvát*





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# CREATING CONFIDENT SOLDIERS FOR THE BATTLEFIELD

A successful army without a state-of-the-art training center is hardly imaginable today. It is a truism to say that well-trained troops are more effective on the battlefield. With live training that uses high-tech equipment and modern software, soldiers can experience a realistic real-time simulation of military battles. Modern laser technology can even calculate ballistics such as speed, flight time and trajectory of ammunition very precisely. And soon a new training era will begin when geo-pairing allows to include long-range weapons without line-of-sight targets into scenarios. With every new tool, more data can be collected that adds value for troops and saves their lives.

The standard for modern training nowadays has been set for decades by the armed forces of countries such as the USA and the United Kingdom based on its high technological and financial potential and constant participation in various armed conflicts. After each war, the needs for training and simulation have changed and continue to do so. Therefore, modern training centres are key to successful missions. Most countries in Europe have realized that and invested in high technology equipment, especially those from the Swedish defence company Saab who is market

leader in this area. Almost all countries in Europe, including the UK, Sweden, the Netherlands, Norway, Finland or Poland invested in Saabs GAMER system. A comprehensive battlefield simulation system that allows live-training for every level of military training – from small units to battalions and brigades. Instead of simulating battles on a screen, live-training offers soldiers realistic battlefield experience without any risk. And the system is interoperable too, allowing trainings across nations. This is important, since many countries in Europe together with the United States, with the

U.S. 7<sup>th</sup> Army have intensified their cooperation, conducting training courses in accordance with NATO standards, which lead to better results within training sessions and ultimately on the battlefield. Right now, following the contract in 2021, the U.S. Marine Corps are also taking Saab's live training solution into use within their organization with 5 sites being established across the U.S, making also them interoperable with other nations.

**Key elements of a highly effective training system**

Whilst there is no substitute for actual combat experience, realism is key to optimize the training experience. Good Live-training solutions allow to practice procedures and equipment handling and on top add crucial external factors such as precise enemy fire, extreme weather or environmental conditions. They accurately replicate all the features of respective weapon systems such as range, ballistics and time-of-flight. Apart from any audible feedback, there is no difference between firing a simulated weapon and firing a live weapon with lethal ammunition. This blurring effect between training weapons and real weapons allows the user to develop their skills and optimize their performance in conjunction with respective armies' Training, Techniques, and Procedures (TTPs). High-performing systems like GAMER integrate military equipment used by the respective armed forces and adapt to their training ground infrastructure. From the individual kits to the communication and exercise management systems everything functions as a coherent whole. Each individual and vehicle kit consists of

a set of sensors that detect laser irradiation, an armament-mounted laser that is safe to the unaided eye (mapping, among other things, the ballistics of the weapon), a satellite navigation system, a radio communication system and a power supply system. Information on incidents, hits or flying projectiles is transmitted to soldiers aurally, while in the case of vehicles with a fire control system, the information can be displayed on the monitors of the combat compartment.

GAMER offers an opportunity to test both private soldiers and high-ranking officers, in the most realistic world possible. Although no blood is shed during the struggle, it is worth treating the training with maximum seriousness. It helps to throw soldiers into the highly uncertain reality of the battlefield, triggers excitement and the desire to compete. And GAMER provides analysts with material that they could only dream of in the case of traditional training.

#### **True ballistics**

Saab offers the most realistic training and simulation systems on the market, based

around the core principles of fidelity, precision and in-depth analysis. Our training and simulation systems don't just look to surpass the realism of competitors; they take realism to the very limits of possibility at every technical level. With this degree of fidelity, forces can train to win in any environment around the globe.

Range, ballistics and time of flight are hugely important characteristics of any weapon system. And these characteristics need be in the warfighter's mind both when conducting training and on operations. Training systems, for soldiers, weapons as well as vehicles, must also replicate these same characteristics, in order that weapons can be correctly employed and the necessary lessons learned in the safety of the training environment.

The Modular Target System (MTS) for vehicles is based on Saab's latest and improved two-way simulation BT46 laser-based training solution. The solution includes the Compact Ballistic Laser (CBL) simulating true ballistics and time-of-flight and corresponding detectors. It is future proof, compact and adaptable by design. For ease of installation, where feasible the modular





target system units are wireless and use commercial interfaces, such as Bluetooth and Wi-Fi. The system is available “out of the box” as Regular Line or Premium Line, both of which use the same core modular building blocks. This modularity results in a more efficient support solution and decreased life cycle costs.

The Compact Ballistic Laser (CBL) simulates true ballistics and time of flight, incorporating both the weapons lead and super elevation. The ballistic simulation can be selected to simulate main gun/coax and RWS or turret mounted missiles. Ballistic weapon simulation also enables precision gunnery into traditional tactical training.

### The leading system

With extensive expertise and leading products in the field of live training and simulation, including in the virtual domain, Saab offers the most reliable and realistic training and simulation systems worldwide. Saab’s training ethos is based on providing training flexibility and fidelity delivered by a forward leaning team of experts and with that earned the trust of armed forces around the world.

In 2021 Saab has signed a contract for the delivery of several live training systems and services to the Polish Armed Forces. Just recently, in November 2023 after elements have been introduced gradually, the first big training session “Tiger 23” took place and

marked the beginning of a whole new era as observers put it. For the exercise, BT46 sensors were mounted on a total of around 100 vehicles and around 500 soldiers took part. GAMER enables the Polish Armed Forces to train as close to reality as possible, domestically as well as at the point-of-need in international collaborations.

Saab has also been selected by the German Armed Forces for a further deepened collaboration. During the contract period from 2020 to 2026, the operation of the Bundeswehr Combat Training Centre Gefechtsübungszenrum (GÜZ) will be supported in the areas of management and maintenance. In addition to the German Army, GÜZ is also regularly used by other countries such as the Netherlands, Austria, the US 7<sup>th</sup> Army with its Deployable Instrumented System Europe (DISE) and, more recently, the British Army. The latter, along with its US partners, has participated in interoperable exercises using the Saab Direct Fire Weapon Effects Simulator (DFWES), which has been in service since the mid-1990s. Saab provides enduring collective training support service in the British Army, with agile field teams deploying worldwide to provide embedded support. At the same time, Saab has facilities at all infantry schools and supports UK Special Forces in counter-terrorist operations training. And with Belgium, another market in Europe has recognized the need to be interope-

erable, and the armed forces recently opted to procure a completely new training center to enhance their training capability and become fully interoperable.

### Data is everything

At the heart of every modern training system is the exercise control and evaluation system (EXCON). This is where information from every sensor and effector flows in. Soldiers monitor the course of the exercise, comment on the tactical situation and form initial conclusions. This is the basis for the After-Action Review and subsequent analyses on the performance of the simulation system and the troops’ actions. Scaled-down versions of Saab’s system WinEXCON can also be installed on the tablets of service personnel operating in the field. The system displays in real time every participant in the exercise, their status, records every shot and every hit. A map shows the deployment of soldiers, vehicles, or the predicted locations of the fall of shells of simulated artillery fire.

The software offers a lot of features to increase realism. For example, users have a limited amount of ammunition. If soldiers are hit within the simulation - depending on the type of hit - they can die, be slightly or severely wounded. Severe wounds can make it impossible to move or to shoot because the laser on the weapon is then deactivated. Also, the system recognizes cheating and

takes soldiers who try it automatically out of the session. It is also possible during the training to modify the course of the exercise by raising the scale of difficulty. This can include a virtual call for artillery fire, simulating an air attack or the use of weapons of mass destruction. WinEXCON can manage more than 400 events per second, even when the exercise players are spread over a large area.

By providing a real-time view of the exercise, the system allows the exercise management to verify what decisions were made by commanders at each stage of the process. Not only the management, but also the soldiers can see the effects of the decisions made, analyse the action, make modifications and, if necessary, repeat such actions. By retraining and eliminating errors, the training level of the soldiers are gradually raised.

#### Logistics & support

Buying the equipment is the first step, but maintenance and support is crucial, too. Saab therefore is not only providing the technology, it also offers the necessary technical support for its system. The Saab personnel provide comprehensive operational support directly on the training grounds. They support the military in the installation of simulator components on vehicles and on soldiers. They are also able to carry out repairs to the system, remove possible errors, and assist soldiers in the correct use of the simulator. And during military exercises, they can be on duty in the field to respond to faults as quickly as possible. With this a high level of simulator performance and thus uninterrupted exercises is guaranteed.

Military training requirements change all the time based on geopolitical situations, technological advancements, and shifts in military doctrine. The pace at which training technology must therefore continue to develop is extremely high. In order to have the best training, suppliers like Saab play a key role in providing access to the latest advancements, ensuring that training systems remain relevant and effective. Only with logistical support and continuous updates can these new technologies be integrated smoothly into existing training frameworks.

#### Enabling multinational exercises

Multinational exercises, like the AURORA 23 exercise in Sweden, where more than 26 000

soldiers from 14 nations including Sweden, Finland, Norway, Germany, United States and United Kingdom participated is a key to maintain international defence collaboration. Another example is Nordic Response 24 which is a part of NATO's Steady Defender 24 exercise series. 20 000 participants from 14 nations, including Sweden, US, Norway and Germany will be a part of the exercise.

Saab has more than 25 customer nations globally using the Saab GAMER solution for their live training capabilities. As the leading supplier of Land Forces Training solutions, Saab enables customers within allied nations to train together. Saab is already a key supplier of live training technology to the U.S. Army through the IRS, CVTESS and VTESS programs, as well as to the US 7<sup>th</sup> Army (DISE) in Europe. The recent contract with the U.S. Marine Corps offers additional possibilities for the U.S Marine Corps to deploy forces and train within an interoperable framework in order to maintain regional stability and alliances. This includes both NATO as well as Regional Partner Nations all around the globe.

#### More confidence in battle

Training is supposed to better reflect real operations. Simulators leapfrog the realism of training, making soldiers more aware of how easily they can be detected and neutralised. Practice shows that each successive simulator exercise results in a reduction

in the number of casualties in potential battles and is also of great benefit when developing new doctrines.

This is why Saab continuously invests in research to develop its training systems even further. With that being said, the next innovation is already in the pipeline: In the near future the Swedish defence company will be releasing technology that will be able to simulate the hit of a target that is without line-of-sight. An important feature that allows to bring long-range weapons into trainings scenarios. Also, the use of drones during battle is becoming more and more important. Saab is not only exploring how they can simulate scenarios where you learn to protect yourself from them, but also how you can make use of them most effectively.

All of this will help prepare soldiers faster and, above all, better for the challenges they may face in an increasingly unstable world, and thereby make them as confident as ever possible in a conflict scenario. Of course, the pressure of a training ground exercise will never fully equal the situation on a real battlefield. But the closer the two realities can be brought to each other, the better.

*Author: Eva Soukupová*

*Photo: Saab*





# NEW EXPORT STRATEGY TO PROVIDE COMPREHENSIVE SERVICE

The role of the Ministry of Industry and Trade of the Czech Republic in supporting industry, especially the defence and security industry, is irreplaceable. The support is provided in close partnership with the Ministry of Foreign Affairs, the Ministry of Defence as well as with other ministries in some particular cases. Defence and security industry relies on this support, and often even expects it. The role of the Licensing Administration and the CzechTrade Agency is equally important. For this reason, we sat down for an interview with Mr. Rudolf Klepáček, Director of the Trade Promotion Department of the Ministry of Trade and Industry of the Czech Republic.

**Mr. Klepáček, correct me if I am wrong, you have been serving as the MIT's Director of the Trade Promotion Department for the tenth year already. What does this role entail?**

Given how much the world has changed and the number of challenges we faced, it may feel like ten years, but in reality, it is less than that. I have taken over the role of Director of the former Department of Export Strategy Management and Services in fall of 2018. Last year we decided to rename the department so as to be more understandable and relatable for our partners. In addition to policymaking on the export strategy, export financing and insurance, much of our work is rela-

ted to the specific and direct support for Czech exporters, whether it is the organization of the official Czech participation in trade fairs and exhibitions, incoming missions or the implementation of the Aid for Trade. A significant part of our work also consists in cooperation with the CzechTrade agency and other ministries, primarily with the Ministry of Foreign Affairs, as well as with business and industry representatives. I and the team of my colleagues enjoy the variety and broad range of activities, which fall in the scope of our department. In addition of being inherently unique and unrepeatable, this work contributes to the prosperity of companies and our country, which is highly motivating.

**Last August, the Government approved a new Export Strategy, which defines the direction of export support for the next ten years. Could you explain what this means for the defence and security industry?**

In terms of the defence and security industry, the export promotion is a separate, specific discipline that has its own rules. In the context of the current security situation caused by the geopolitical crisis in Ukraine, its importance and strategic nature have significantly increased. Close cooperation with the Ministry of Defence and the Ministry of Foreign Affairs is also necessary for this reason. Important contracts now take place at the G2G level

with the assistance of the Agency for Intergovernmental Defence Cooperation of the Ministry of Defence, which provides Czech companies with a complete service, from networking with potential partners and the assistance with financing and insurance provided by the state-established institutions ČEB and EGAP to the conclusion of intergovernmental or other agreements.

Since the defence and security industry has an inherent high value added, effective cooperation between science, research and development and the follow-up market application, it fits well with the principles of the new export strategy, focusing primarily on the qualitative nature of exports and new technological domains that are applied in and interconnect the traditional sectors. These include, for example, artificial intelligence, smart solutions using the advanced digitization and advanced production technologies or materials. Many of these domains find

their practical application in the defence industry, which brings together multiple sectors and forms an industrial and export complex. The defence and security industry are also synonymous with innovation, high expertise level and highly specialised workforce. It can be assumed that the results of innovation brought about by the defence industry will eventually be used and applied also in the civilian sector.

The objective of the Export Strategy is to provide a comprehensive service to the companies that might become new export champions. Specifically, this includes an export support at various stages, from the idea and design to the product development and production, promotion on foreign markets and export financing. The export support seeks to create the best possible conditions abroad for these companies, to strengthen their positions and to continuously provide support using a combination of effective tools, including industry-focused missions, incoming mi-

ssions, intergovernmental negotiations or marketing support through the participation in exhibitions and trade fairs. We also promote cooperation among businesses in creating their joint offer of unique complex solutions and related products and services. It is precisely these principles that we want to apply when supporting companies of the defence and security industry.

**How would you describe the defence and security industry's support at this year's exhibitions and trade fairs, such as DSA Malaysia, EUROSATORY France (defence and security), Farnborough UK (aerospace) or Intersec Saudi, Saudi Arabia (security) with the planned official participation of the Czech Republic?**

In terms of supporting the joint participation in exhibitions and trade fairs, which also applies to events specialized in the



defence and security industry or in the related aerospace industry, we wish to continue on the path we started last year. When planning and preparing events, we prioritize quality over quantity. Exhibitions conceived as a complex and interconnected offer of individual products and services of multiple companies is the key to gaining a competitive advantage. The complex offer of solutions reflects the customer's needs, whose motivation is not just to acquire a product alone, but an overall solution tailored to their needs. In order to improve the position of Czech businesses on foreign markets, it is essential to shift marketing to a higher level to include presentations of comprehensive offers and creation of thematic pro-export platforms, which reflects the ambition of moving the Czech Republic from the level of a sub-supplier to the level of an integrator and supplier of final solutions.

We have applied this new approach on the Czech official participation in exhibitions and trade fairs abroad organized by the Ministry of Industry and Trade for the first-time last June at the Paris Air Show, where a creative exhibition concept tailored to the aviation industry was presented with a strong emphasis on the visual attractiveness and the connection of all elements to create one functional whole. The national exposition was conceived as a two-storey structure designed to resemble an airport, with a runway, a background in the shape of a control tower and a suspended model of L-39 NG jet aircraft. The main marketing message was communicated by videos projected on a big LED screen and industry-related graphics showcasing the Czech producers of final products, their respective supply chains and industrial expertise. The level of presentation achieved in Paris would not have been possible without a project approach that brought together the capacities of the ministries involved and the private sector. The result was a true synergy of pro-export instruments, where the Czech official participation, carried out by the Ministry of Industry and Trade, was complemented with a project to support the economic diplomacy, the so-called PROPED, provided by the Ministry of Fo-

reign Affairs and funded by the Ministry of Defence. Some of the funds was also contributed by the Aerospace Industry Association of the CR and exhibiting companies. The example of the Paris Air Show clearly demonstrated how much better results can be achieved when companies work together to create a comprehensive offer and the ministries responsible for business support pull together. In this way, we want to continue in bringing the capabilities and tools of the three ministries and the private sector together, and create synergies and an effective state pro-export support for the sector, which is a driver of industrial innovation and propels Czech companies to better positions in global value chains.

**Our publishing house is again preparing a book, titled "Security and Defence Technologies Catalogue 2025–2026"; this time to be published in English only. The interactive online version accessible via a simple application will also be a novelty. Could you add some supporting words and tell us how do you feel about the previous editions? What is the benefit of presenting companies and using the information contained in this publication?**

First of all, let me begin by saying that we highly appreciate the initiative and innovation in the field of presentation of defence and security industry companies conducted by the MS Line Publishing House and the Defence and Security Industry Association, which are reflected in electronic forms of publications, such as the Review for the Defence and Security Industry and, the most recently released, the Security and Defence Technologies Catalogue. In our opinion, modern sophisticated digital catalogues are the path we also want to take in supporting Czech companies. This trend accelerated and worked very well especially during the pandemic, when the development of digital presentation tools helped to reduce the dependence of Czech exporters on traditional marketing forms such as trade fairs, conferences, trade missions, etc. Despite of the fact that the physical pre-

sence at exhibitions and trade fairs in such a challenging field as the defence industry is irreplaceable, developing digital platforms and online company presentations complement the mix of marketing tools appropriately. Digitization and the presentation of complex industrial or domain solutions may fundamentally influence the success of the pro-export marketing. Digital tools in the form of virtual and augmented reality, interactive showrooms or thematic video presentations attract attention thanks to the wow effect and, at the same time, make it possible for a presentation to be available 365 days a year. However, this is not something which would replace traditional marketing, but rather complement it. In terms of the traditional brand-building tools, it is essential to develop a unified and simple presentation of strong domains/sectors of the economy with an emphasis on innovation. The availability of marketing materials and their modern appearance across our Unified International Network can significantly help a successful and effective branding even in daily communication with foreign partners. Such a tool is easily accessible from any device with a web browser and offers immediate marketing support for the work of company representatives, as well as domestic and foreign pro-export networks.

*Mr. Klepáček, thank you for the interview.*

*Šárka Cook*

*Photo: MIT CR*



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# DEFENSE · MOBILITY · SYSTEMS



## SABRE

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CERTIFIED

MOBILITY

MISSILE  
WEAPONIZATION

MODULARITY

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# ARQUUS

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ARQUUS - DEFENSE . COM

MEMBER OF THE VOLVO GROUP



# TECHNOLOGY AND INNOVATION LABORATORY

In the dynamic environment of modern communications, reliable and secure communication is critical not only for the success of tactical operations but also for a wide range of civilian applications. Ensuring the functionality and reliability of communications equipment is essential for its successful deployment in a variety of industries, which is why OPTOKON has built a new modern laboratory for testing electronic communications equipment.

Safety is a key priority for us and that is why the premises of OPTOKON, a.s., including the testing laboratory, are equipped with the most modern safety features. In addition, the entire perimeter of the OPTOKON premises is protected by our own modern FOTAS technology, which utilizes optical fibre as an acoustic sensor that detects sounds in the vicinity of the optical cable. This system can warn of unauthorized access to the perimeter and one of its main advantages is that it does not need any infrastructure in the perimeter, only a fibre optic cable installed on a fence or buried in the ground. The laboratory is also equipped with a complete backup power supply secured by UPS and diesel generators, which ensure independence and reliability of operation even in the event of a power failure.

The newly built OPTOKON testing laboratory is strategically located by the motorway between Prague and Brno and is therefore easily accessible from anywhere in the Czech Republic.



In addition to testing and simulating various electronic device wiring applications, OPTOKON offers accredited services from its test laboratory which specializes in electromagnetic compatibility testing (EMC), which is essential to ensure that electronic devices do not interfere with the operation of other devices or systems. Our laboratory is equipped with a modern Lindgren semi-anechoic chamber, which provides an excellent environment for accurate measurement. We can perform electromagnetic interference tests (EMI) in the frequency range of 9.5 kHz to 18 GHz under the military standard MIL-STD 461 for electronic equipment and EN 55032 standard for consumer electronics. To ensure accurate measurements, the laboratory uses Schwarzbeck antennas and Rohde&Schwarz ESR 26 receiver (up to 26.5 GHz). The OPTOKON test laboratory offers the possibility of EMI testing (CE102 and RE102) and EMS testing - CS101 (susceptibility to conducted emissions, power conductors), CS114 (susceptibility to conducted emissions, injection into the cable harness), CS115 (conducted emission susceptibility, wiring harness injection, pulsed excitation), CS116 (conducted emission susceptibility, damped sinusoid, cables and power conductors) and RS103 (radiated emission susceptibility, electric field).

In our second laboratory, we specialize in testing mechanical and climatic properties, especially of fibre optic cables and similar components. The professional equipment of our laboratory can also be used for testing other electronic equipment according to MIL and COS standards. This laboratory is accredited and certified to ISO 17025 standards and the mechanical and climatic tests have been



accredited under EN 60794-1-21 and EN 60794-1-22 standards. Support for a modern data centre is an integral part of the test lab. The DATA CENTRE VYSOČINA manages the secure storage of all data and outputs from the OPTOKON test centre and offers many other interesting advantages and possibilities to customers. All information, outputs, and sensitive data from the OPTOKON test centre are systematically stored in the data centre. Thanks to modern technologies and the highest security standards, the data is protected against loss, damage, or unauthorized access. Customers can rest assured that their information is safe and ready for immediate recovery if needed.

The data centre allows customers to securely access their data anywhere, anytime. With encrypted connections and authentication mechanisms, users can easily manage their data, perform analysis,

and share information with colleagues. In addition, the data centre offers other services such as performance monitoring, cloud backup, and even computing power for demanding tasks. All of this contributes to the efficient use of data and increases customer productivity. OPTOKON offers expertise and reliability in testing electronic and communication equipment and thanks to our modern equipment and experienced specialists we can meet even the most demanding customer requirements. Whether you are developing tactical electronic equipment or consumer electronics, OPTOKON has the knowledge and capabilities to verify that your equipment meets the highest standards and can help you succeed in today's competitive environment.

#### Modern and efficient information and support management

QR codes are an innovative and effective way of marking products and sharing information with users. Thanks to their fast and easy readability, large data capacity and wide range of applications, they are becoming an increasingly popular tool in the modern world.

Each OPTOKON product is equipped with a unique QR code and once scanned, connects the user to a wide range of digital services. The link from the QR code will access an online version of the product documentation, including user manuals, manuals, technical specifications, and safety instructions. Users will find possible video tutorials, tutorials, and FAQs to help them install, configure, and use the product. The QR code will also allow easy contact with our customer service centre. This allows users to quickly and conveniently get help with technical troubleshooting and questions answered.

Some product-specific information is secured and only available to certain users. All data is stored securely in "DATA CENTRE VYSOČINA".

To unify and streamline customer support, we are introducing a single helpdesk. Users will thus receive comprehensive assistance with everything related to our products and services in one place.

In line with trends in the modern world, we are actively working to implement artificial intelligence (AI) technologies into our ecosystem. AI will play a key role in automating customer support, personalizing products and services, and optimizing processes.

We believe that QR codes and connecting products with digital services represent the future of user-product interaction. With innovative technologies and continuous development, we strive to provide our customers with the best user experience and maximum support.

*Zdeněk Malý, IT & Marketing Manager, OPTOKON, a.s.*





# ON THE EVER-HOT TOPIC

The tasks of the Ministry of the Interior of the Czech Republic as the central body of the state administration in the field of weapons and ammunition are being performed by the Department of Security Policy. In addition to its other tasks, the Department of Security Policy analyses and creates legislation in the field of weapons and ammunition, and also conducts negotiations on behalf of the Czech Republic in international institutions in the aforementioned areas. The Department also carries out state administration in the mentioned areas, in administrative proceedings it fulfils the tasks of a superior administrative body vis-à-vis the Police Presidium of the Czech Republic, and it issues sets of written tests for testing the professional competence of applicants for firearms licenses and ammunition licenses. It also organizes the professional competence tests of applicants for appointment as an examiner for the professional competence tests of applicants for issuance of a firearms license (it also appoints examiners, suspends their activities, and, if necessary, dismisses them). It also organizes professional competence tests for applicants for the issuance of a higher ammunition license and licenses for conducting pyrotechnic research.

***Mrs. Milena Bačková is a long-time Head of the Department of Municipal Police, Weapons and Traffic Engineering and Private Security Services of the Department of Security Policy of the Ministry of the Interior of the Czech Republic, which by law is responsible, among other things, for legislation in the field of weapons and ammunition.***

**Madam, do you have a firearms license? What are your favourite weapons?**

I don't have a firearms license myself. Not, yet. I must admit that the outbreak of the war in Ukraine was probably the last impulse for me to get a firearms license. I have no definite preference for any weapon model or manufacturer. I prefer a well-manageable pistol,

not too big, but not a mini or micro variant either, rather a compact or subcompact.

**How involved is your department in preparing new weapons legislation? You must have prepared the proposal, then made comments...**

Yes, our department is comprehensively responsible for the issue of weapons and gun legislation. We negotiate in EU working bodies dealing with the topic of weapons, we analyse the weapons environment, write draft Laws on weapons or ammunition and accompany them through the entire legislative process. And then we also put them into practice, interpret, apply, and conduct proceedings according to these Laws.

**Can you mention the changes that are proposed in the working version of the new Law? Which of them are the most important in your opinion?**

The Law on Weapons and Ammunition and the Law on Ammunition are primarily intended to modernize and thoroughly electronicize the entire agenda of weapons and ammunition. All paper documents are being cancelled. Professionals in the industry, firearms and ammunition licensees, have been working in the regime of the central weapons registry since 2014. Now the electronic services of the central register of weapons will also be extended for natural persons, firearms licensees. The entire system will be simplified and made clearer. The Central

Register of Weapons already communicates directly with the basic registers, the Criminal Register and the Offenses Register. It should also communicate with the National Health Information System under construction and with the Licensing Administration System of the Ministry of Industry and Trade of the Czech Republic (MIT CR)\*.

**The amendment to the Law on weapons is in the Chamber of Deputies. What do you think is the biggest obstacle to the completion of the adoption process and the Law becoming effective?**

The draft of the new Law on weapons and ammunition and the draft of the new Law on ammunition were approved by the Chamber of Deputies in January 2023 and are now being considered by the Senate. We assume that the legislative process will be completed in the first half of 2024 and the Laws will come into effect as planned, i.e. 01/01/2026. The delayed effectiveness is mainly due to the fact that the mentioned consistent electronicization of all processes requires a fundamental change of the Central Register of Weapons. The Register actually has to be reprogrammed. It will also take some time to test the new Register. Due to its complexity, the range of data stored in it, its sensitivity and the fact that all companies handling weapons or ammunition must work in the register in real time, we cannot afford any of its outages.

**The existing Law already tries to ensure that weapons do not fall into the hands of mentally incompetent people, and the issues of health assessment of an applicant and psycho-tests are highly discussed, especially after the tragedy at the Faculty of Arts in Prague. Are changes or tightening in this direction being prepared in the new Law?**

The new Law on Weapons and Ammunition shortens the period for medical fitness checks from ten to five years. The mutual exchange of information between the Police and doctors is also being strengthened. Therefore, to make this exchange of information as fast as possible, the Central Register of Weapons should be linked with the National Health

Information System. For example, doctors should always have information on whether their patient holds a firearms license.

**What does "competence" actually mean in the current firearms licensing process? How and who determines and confirms it? Will there be a change in the new Law?**

Every firearm owner must be legally competent, with a clean criminal record, reliable, and medically fit. If he/she does not meet any of these criteria, his/her weapons are immediately seized by the Police and his/her firearms license is revoked. The "competence" requirements are defined in the Law on Weapons and are assessed by the Police of the Czech Republic. A clean criminal record means that a person has not committed any intentional crime. Reliability is affected by whether a person drinks alcohol excessively, uses drugs or has repeatedly committed one of the defined offences. The legal competence, clean criminal record, and reliability of all firearms owners are being verified on an ongoing basis through the mutual communication of the Central Weapons Register with the basic registers, the Criminal Register and the Offenses Register. Medical fitness is proven by an opinion issued by a general practitioner of the firearm owner at least once every 10 years. It will now be once every five years. The Law also sets out a number of reasons when an emergency medical examination is required.

**The draft amendment also brings the possibility for the Police to seize weapons as a preventive measure based on security information. It can be about ties to extremist groups or threats of violence on social networks. Is this a step in the right direction?**

Yes, it is. The Law contains a number of preventive measures that allow the Police to immediately seize weapons from a person suspected of being a danger to himself/herself or his/her surroundings. In case of such suspicions, prompt action is necessary. After weapons are seized, a standard administrative procedure follows, in which the Police, as an administrative authority, must prove that the person has really ceased to meet any of

the above-described conditions for possessing weapons, or must prove why the person represents a danger to the security of the Czech Republic. The decision issued by the Police of the Czech Republic is then subject to judicial review.

**As far as I know, the European Commission has been dealing with the issue of banning lead bullets and replacing them with steel ones for a long time. How could this be reflected within the defence industry and can this be perceived as a security risk?**

Banning the use of lead in bullets would undoubtedly have a negative impact on the defence and security industry and indirectly on security as such. There is still no adequate non-lead replacement for a number of calibres. The fundamental price difference is also significant. Unleaded bullets also have a negative effect on the liveliness of the weapons used, which can limit the training of security forces. In a situation where Europe is unable to fulfil its own obligations regarding the supply of ammunition to Ukraine, I do not consider it wise to further complicate the production and use of small calibre ammunition.

\*The Licensing Administration of the Ministry of Industry and Trade of the Czech Republic (MIT CR) is responsible for the performance of the ministry's function in the application of permit and licensing regimes in the field of foreign trade with special material, i.e. military material, weapons and ammunition of a non-military nature, dual-use goods and goods that can be used for torture, and also for the implementation of licensing procedures according to EU legislation in the area of trade protection measures within the framework of the EU's common trade policy.

*Thank you for the interview  
Jaroslav Jonák*

*Photo: Ministry of the Interior of the Czech Republic*

*Illustrative photo: Police of the Czech Republic*



# SAFE COMMUNICATION IN DANGEROUS CONDITIONS

The MESIT company (member of the OMNIPOL group) is a major supplier of tactical communication equipment for the Armed Forces of the Czech Republic. Using its extensive experience from this long-term cooperation, it has developed a tactical system for loud broadcasting of audio/acoustic announcements to the surrounding of a military vehicle. VICM 300 Battlefield Announcement System is successfully deployed on various platforms of new vehicles abroad. The impetus for the development of this system came from lessons learned from combat operations, which highlighted the need for active verbal communication with civilians in built-up areas.

Battlefield Announcement System VICM 300 allows the vehicle crew to communicate effectively to the public through external vehicle-mounted loudspeakers and an electronic control unit, which is the “brain” of the system located in the vehicle crew compartment. The system is capable of audible and intelligible acoustic announcements up to a distance of several hundred metres. These announcements are primarily used to increase awareness among civilians, to allow the convoy to pass and clear the corridor or as a warning in the event of industrial accidents or natural disasters.

## Integration compatibility is the key

Key benefits of the system include integration compatibility with other communication systems and the possibility to pre-record announcements in different languages, which is particularly important for overseas operations. Flexibility of the system allows installation on

various military or police vehicles, vessels or at mobile command posts or forward operating bases. The durable design allows to be used even in very demanding environmental and climatic conditions. VICM 300 is also an ideal choice for Psychological Operations (PSYOPS), Civil-Military Cooperations (CIMIC) or the Cyber and Information Warfare Groups (CIWG).

## Support and further development of the system

Battlefield Announcement System VICM 300 meets strict international military standards such as MIL-STD-810 and MIL-STD-461. It uses state-of-the-art integrated circuits and its technical solutions ensure high product reliability in real conditions of combat operations. It has been developed and manufactured in the Czech Republic, which provides the Armed Forces of the Czech Republic with a guarantee of technical support and further development. Properties and application of

the system have been verified by a number of demanding foreign customers.

In these times, modern armies are becoming more and more aware of the necessity and justification of safe verbal communication from the vehicle to the public in the vicinity of a vehicle. Actively conducted and clear communication helps to calm tensions on all sides and reduces the risk of unintended conflict escalation and unpredictable reactions. Battlefield Announcement System VICM 300 is proof of MESIT’s long-standing commitment to providing innovative and reliable solutions for tactical communications and security. It not only represents a solution to protect the lives of soldiers and civilians, but also has great development potential for the future.

defence@mesit.cz  
www.mesit.cz

# PLESS

Over The Horizon • Passive Long-range • ESM Surveillance System





# NEW MODIFICATION FROM RESCUE TRAILER

From today's perspective, unmanned aerial vehicles play a significant role in deployments in both the civil and security sectors. This is true not only in mapping large areas, in combat itself or in other missions where drones substitute costly solutions. The deployment of drones has become indispensable and, given their abundance, there is a need for facilities for operators and other units that ensure the operation of the base or its security. Thus, in collaboration with drone experts, Rescue Trailer responds and offers a completely new solution for these needs.

Of course, Rescue Trailer remains a cost-effective and energy-independent trailer that can be towed behind any vehicle and, moreover, is homologated for operation on roads. The trailer's load-bearing frame with independent suspension guarantees comfortable and safe movement in difficult terrain. The Rescue Trailer thus forms the backdrop in the site and is the ideal solution for its price as well as storage and transport.

The anti-drone base modification is a technologically advanced solution that focuses on long-term and unattended operation. The base is equipped with ballistic protection for crew security and embedded technology. To complement the protection of

the base, a weapon solution can be applied within the remote control.

These combinations enable the seamless operation of a modern, unmanned anti-drone base that can be immediately deployed behind existing fleets. It is therefore easily possible to secure an area against unmanned vehicles, not only within the external border, but also during emergencies where large numbers of people congregate.

Now let us focus on the trailer modification itself. This variant is being designed in cooperation with our technology partners. The main part of this modification is a telescopic mast up to 21.5 meters high, on which the above-mentioned technology for the anti-drone warfare is placed. However, the mast can be fitted with another assembly as well that is suitable for other applications such as radar, lighting, or wind power. The operation is managed by an operator sitting in a secure area at the back of the trailer, where he analyses everything, monitors the situation, and sends the data to the command post. He has enough power to operate the technology, which can be obtained from a conventional fuel generator or, in silent operation, by using solar panels in conjunction with methanol cells and traction batte-

ries. These power units are certified for use in military applications.

Everything on the Rescue Trailer is logically and structurally arranged. The drones have their fixed anchorage for transport. Spare parts, repair kits and tools are stored in the side sections of the trailer. Longitudinally on the axis is a horizontally folded mast that extends by a pneumatic mechanism and can be operated manually as well in the case of a power outage. In the event of adverse weather conditions, the mast automatically partially retracts and is capable of continuous operation. The mast reaches a maximum height of up to twenty-one meters so that it overhangs the surrounding buildings and trees. Its load capacity is 150 kg at maximum extension.

With this anti-drone modification, Rescue Trailer has expanded its scope and use. It still offers deployment in all conditions - evacuation of the population, natural disasters, mass casualties or border protection. Now it takes on new forms to form a safe and stable background for the drone unit. In conjunction with other modifications of the Rescue Trailer, it gives rise to separate units with command facilities or equipment for triage and treatment of injured persons.







# MULTILIFT MSH HOOKLIFTS

## highly efficient technology for providing fast and flexible logistical support

Any military operation needs high-quality logistics security, that is planning and carrying out the transportation of military equipment to a final location at optimal time and at optimal cost. MULTILIFT MSH hooklift concept, intended for handling loads of various superstructures, stored on platforms or inside ISO containers, helps to accomplish these logistics tasks. MULTILIFT from supplier Hiab is recognized worldwide as the most cost-effective way to provide fast and flexible logistics support, which is standard for NATO member states' armies.

For example, MULTILIFT MSH 165 SCA hooklift, which is in use by the Czech Army and is fully compatible with the equipment of the logistics units of other NATO member states' armies, including repairs, maintenance and spare parts. The advantage of this compatibility has already been proven especially during the deployment of Czech soldiers in foreign missions, where MULTILIFT MSH hooklift by Hiab is also used by

other NATO member states, e.g. USA, Great Britain, Belgium, Canada, Denmark, Germany, Poland, etc.

### **Hiab's worldwide sales and service network**

Since its establishment in 1976, Hiab GBO (Government Business Operations), thanks to significant investments in research and development, has been pro-

viding tailor-made handling technology solutions according to the specific requirements of the armies in the country in question, also in the Czech Republic where the hooklift MULTILIFT MSH 165 SCA has been adapted to the requirements of the Army of the Czech Republic. Currently, several tens of thousands of military handling equipment from Hiab are being used around the world.

### Hiab's representative in the Czech Republic

The Czech company CONTSYSTEM, which is an authorized sales, installation and service representative of Hiab in the Czech Republic, has been cooperating on delivery projects of MULTILIFT hooklifts for the logistical needs of the Czech and Slovak Armies for more than twenty years, and to date the armies of both countries use over 400 units of these MULTILIFT hooklifts, whether older MK IV types or newer MSH or MPH types.

### MULTILIFT MSH represents significant cost savings

By using MULTILIFT MSH hooklift system, we provide significant advantages in terms of cost savings and flexibility, which derive from the ability of such logistics vehicles to transport material stored on a flatrack platforms, for example fuel and water tanks, mobile workshops, hospital shelters or diverse material inside ISO containers.

### Special H-frame for transporting ISO containers

MULTILIFT MSH 165 hooklift has the advantage, compared to older types, that the specially developed H-frame, intended for the transport of ISO containers, can be transported on the vehicle in the storage space behind the cabin in all cases, even when it is not in use. When the H-frame is subsequently used, re-preparation for handling the H-frame is very quick. By folding down the H-frame, the hooklift can be transported in some types of aircraft.

### Every moment in the field is crucial

In demanding, unstable terrain, only high-quality equipment is required. MULTILIFT hooklifts on TATRA chassis, which are used by Czech and Slovak Armies, are equipped with auxiliary hydraulics. This means that a broken-down vehicle can be hydraulically connected to another functional vehicle for unloading/loading. Another useful feature is the self-recovery function when the vehicle gets stuck in mud, soft sand, etc. By pressing the unloaded container against the ground, the vehicle is pushed out of the mud and as soon as it reaches solid ground, the driver pulls the container back onto the body and continues driving.

### MULTILIFT MSH, the hooklift for demanding conditions

Experience and user's feedback enables Hiab to implement new designs as well as to adapt existing products. CONTSYSTEM contributes significantly to new technical solutions, mainly thanks to many years of experience in the field of installation and servicing of MULTILIFT load-handling systems



tems and feedback from members of the Czech Army.

As it is obvious, the logistics of the Czech Army uses current modern technologies in material transportation to develop its capabilities.

**CONTSYSTEM s.r.o.** is an authorized sales representative of the military range of MULTILIFT hooklifts, HIAB loader cranes, MOFFETT forklifts and HIAB spare parts for the armed forces of the Czech Republic and Slovakia. It also acts as an authorized service center and control body for the installation of HIAB, MULTILIFT and MOFFETT delivered for the Army of the Czech Republic and Slovak Republic. Another important area are the supplies of HIAB technology for the Integrated Rescue System. Customers from the private sector range from all the industries, container transport, waste management, rail and construction.

**Hiab GBO.** With more than 60 years of experience in hydraulic handling technology, Hiab GBO is a stable, innovative leader in load handling solutions for the ever-changing logistics environment. Founded in 1976, Hiab Government Business Operations is dedicated exclusively to the defence sector. As part of a large, financially stable corporation, Cargotec offers resources, experience and stability for long-term procurement vital to successful defence programs worldwide.

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




**agados**

# AGADOS AND ITS INNOVATIONS

AGADOS, a traditional Czech brand that has been producing trailers since 1992, has 120 years of rich tradition in engineering production. It is one of the largest domestic trailer manufacturers and one of the largest European trailer manufacturers in the categories up to 750 kg and 3,500 kg. It stands out not only for its progressive design and construction solutions, but also for its in-house development department, which enables constant technological progress and innovation.

In line with its commitment to quality and reliability, AGADOS is proud to hold ISO 9001 and ČOS 051672 (AQAP 2110) certifications, enabling it to maintain the highest quality standards. Each product undergoes a thorough inspection process to ensure the highest standards are met. During production, the company places great emphasis on the use of quality components, ensuring high performance, durability and long product life. Perfect craftsmanship is a matter of course for AGADOS, which is reflected in customer satisfaction and trust in the brand. As a result, the company

sells around 25,000 trailers a year, more than half of which are sold outside the Czech Republic.

AGADOS actively participates in important trade fairs not only in the Czech Republic, but also abroad. In 2024, the company plans to participate in several prestigious events where it will present its innovations and products. One of these events is the TechAgro fair in Brno, which is one of the most important domestic agricultural fairs. This event is an opportunity to present the latest trends in agriculture, including digi-

tal technologies, precision farming, smart farming and the use of navigation systems. The company also plans to participate in the International Defence Engineering Fair IDEB in Bratislava, where it will present its special trailers. This fair is a good opportunity to present innovations in the field of defence technology. The company is also expected to participate in other Czech events.

#### **Military segment**

Since 2014, AGADOS has been focusing on the production of special trailers designed



not only for the Integrated Rescue System and the Armed Forces. These highly specialised products are an important part of the armament not only of the Czech Army, but also of several NATO member countries.

The offer includes an amphibious all-terrain trailer, which is one of the flagships of the company's military portfolio. This unique trailer is capable of traversing any surface with ease and can even cross water by floating behind a towing vehicle. Its uniqueness was confirmed by an award at the IDET International Security Technology Fair in Brno, where it was named Exhibit

of the Year 2019. The company also offers a mobile field kitchen, ideal for preparing a full menu for up to 350 people. These kitchens are available in several types and their flexibility allows for efficient catering in different conditions. The AGADOS portfolio also includes mobile equipment for lighting the handling area in field conditions, a water treatment plant and a drinking water tanker, which can be used not only during natural disasters. Since 2023, AGADOS has been producing chassis for mobile diesel generators. The chassis can be fitted with any diesel generator accor-

ding to the user's power requirements. It is also possible to adapt the chassis to different sizes and weights of diesel generators. The mobile diesel generator is ideal for providing power in locations where the availability of electricity is limited or non-existent. This innovation offers a wide range of applications, especially during power outages or blackouts in key operations such as airports, festivals, manufacturing plants or halls. The mobile diesel generator is easy to service, making it a suitable solution for a wide range of vehicles, whether they are SUVs, vans or trucks.

#### **The latest special project**

In the field of special projects, AGADOS offers an innovative new product: a refrigerated and freezer trailer for the transport of food, equipped with its own power generator. This innovative technology not only highlights the high quality, but also offers a low cost of ownership. In this way, the company guarantees its customers reliability and safety in the transport of food in a wide range of conditions.



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



# KOUTNÝ, A TRADITIONAL FAMILY COMPANY

For almost 30 years, our traditional family company Koutný has been making uniforms for armed forces and administrative organisations of European and non-European countries. We pride ourselves on the high quality of our products and used materials as well as our flexibility of delivery and personal approach. In order to facilitate collaboration with other entities, we have joined the CLUTEX cluster. As a result, we have become one of the most reliable suppliers of formal and field uniforms, special-purpose combat clothing, overalls, waistcoats, suits, jackets, trousers and many other products. All orders are realised with the greatest possible care in batches both large and small. We hold the ISO 9001:2009 and AQAP 2110 quality certificates and are currently preparing for certification under ISO 14001:2015. In 2023, our company installed photovoltaic panels on all its buildings.

In cooperation with the armies of NATO member countries, we are involved in the development of new equipment compo-

nents. In 2023, we took part in a tender for the Dutch customs authority. The selection process emphasised sustainability, recycled materials, organic natural materials and production processes that are as environmentally friendly as possible. Despite strong international competition, we managed to win. Thanks to this tender and our sustainable approach, our company is now much closer to implementing ESG, setting decarbonisation goals and achieving circularity.

In addition to quality of workmanship, we also care about constant innovation in materials, production processes, technological procedures and designs. The functionality of materials is tested across varied climatic conditions and extreme environments where they are used every day. We use among others the following materials: two- and three-layer laminates, knitted fabric with antistatic fibres and antibacterial treatment, flame-retardant woven fabrics and polyamide-based blended woven fabrics. We pride ourselves on the

use of recycled polyester, which are fibres made from recycled PET bottles. With this, we are trying to reduce our carbon footprint. This material is typically used for linings and main fabrics, where we usually work with a blend of wool and polyester.

We make formal and field uniforms that are crease-resistant yet comfortable to the touch, made of high quality materials from Italy, France and Spain.

The list of our customers includes the Czech Army, Dutch Army, Austrian Army, the Prague Castle Guard, Police of the Czech Republic, Forest Service of the Czech Republic, Fire Brigades of the Czech Republic, Prison Service of the Czech Republic, Customs Administration of the Czech Republic, Customs Administration of the Netherlands, Prague Airport, Czech Airlines etc. We also produce classic menswear. We sell men's ready-to-wear and made-to-measure suits through our own stores in the Czech Republic. Under the Koutný GREEN brand, we also sell environmentally friendly suits containing recycled polyester.





# USING DRONES AS RELAYS:

## How it works and why it's important for the European market

In today's world, where military technologies are advancing at an incredible pace, the ability to use unmanned aerial vehicles (UAVs) as relays plays a crucial role. This technology opens up new horizons for transmitting information, ensuring reliable communication, and supporting operations on the battlefield. This becomes especially relevant in the European market, where issues of military security and operational effectiveness are paramount.

## How drone relays help the military

The relay mode in UAVs provides new opportunities for military applications. Firstly, it helps improve communication in complex battlefield conditions. For example, drones operating in relay mode can transmit data between remote locations where communication with ground stations is difficult or not available at all. This is parti-

cularly important in modern combat operations, where fast and reliable information transmission can save lives.

Secondly, drones with relay capabilities can act as "eyes" for ground troops, providing valuable data on enemy positions, movements, and the overall battlefield situation. This significantly simplifies decision-making for command and increases the chances of success in military operations.

## Key advantages of such devices

The main advantage of using drones as relays lies in their mobility and flexibility. Instead of spending time and money on building new infrastructure, you can simply deploy UAVs to the necessary area of the battlefield, thus ensuring communication and support in the most challenging conditions.

Another important advantage is reliability. In situations where communication may be disrupted due to interference

or deliberate attacks on communication systems, drones help maintain stable information transmission. This makes command and control systems more resilient, increasing the chances of successful mission execution.

## UAVSAVE SPARROW UAV

A good example of a drone that has relay functionality is the recently presented «SPARROW» from the Slovak company UAVSAVE.

This device has several configuration options, allowing it to adapt to different tasks. For example, it can operate as a relay in a MESH network, connecting different parts of the network together. Moreover, thanks to its versatility, SPARROW is suitable for a variety of missions. Depending on the installed equipment, it can be used as:

- A scout. SPARROW takes photos and videos during the mission and then sends this data to the operator.



- Silent Scout. The device records events using photo/video but keeps the data on-board without transmitting it.
- A spotter. It conducts video surveillance and helps adjust artillery and mortar fire.
- Radio electronic reconnaissance (RER). SPARROW detects and identifies radio electronic devices such as radios, radars, RER stations and similar.
- A carrier. It delivers payloads and activates them as needed.
- An imitator. The drone can act as a flying target, a false aerial target, and deceive the enemy.
- A searcher. It conducts high-quality photo and video surveillance, carefully monitoring the viewing area.

The key feature of this system is that it allows for very fast preparation of drones for tasks and easy adjustment of their settings for different functions, such as acting as a relay. And all this can be done by the operator themselves, without specialized training.

Another advantage of the system is the ability to control it using a regular smartphone or tablet. All you need is application that allows you to upload flight routes and



process data collected during missions.

### Conclusion

In conclusion, using UAVs as relays completely changes war strategies. These devices improve communication and operational efficiency, providing mobility and reliability even in challenging conditions. The example of SPARROW from UAVSAVE

shows how drones can quickly adapt to different tasks and be easily controlled via smartphones or tablets. Such technologies make UAVs an important and necessary element in modern military operations.

UAVSAVE

Photo: UAVSAVE, Jaroslav Jonák





# THE MILITARY TECHNICAL INSTITUTE

The Military Technical Institute is a state-owned enterprise that was founded by the Ministry of Defence of the Czech Republic on September 1, 2012. Through its activities, it maintains and further develops the strategic know-how of the Czech Republic in the field of defence and security research and development, including weapons, ammunition, ground equipment, unmanned reconnaissance vehicles, aircraft onboard equipment, radio-technical and airport technical security equipment, simulators, communication systems and associated testing, verification and certification. The company implements projects for both domestic and foreign business partners. The Military Technical Institute plays an exceptional role in the defence security environment. It is one of the largest defence and security research and development institutes in the European Union.

Within the company there are branch plants which exercise powers and competences within the scope of:

## **Branch plant Praha - Kbely - VTÚL (Air Force Military Technical Institute) and PVO (air-defence), which deals with:**

- command and control and communications systems for the digital battlefield,
- information and communication systems and their integration,
- air, radio and radio technical security,
- new troop capabilities upon FMN concept – Federated Mission Networking,
- digitized systems for ground and air operations security,
- flight data analysis and air traffic safety,
- new ATM – Air Traffic Management and Air Defence systems,
- optoelectronic reconnaissance equipment and special equipment,
- simulation and training technologies for air and ground forces of the Czech Armed Forces,
- modular expert systems based on artificial intelligence and robotics,
- cyber security.

## **Branch plant Vyškov:**

- tasks in the field of special technology, testing and small series production for the Czech Armed Forces and the civilian sector,
- testing and certification activities for the MoD,
- tribological diagnostics of engines and gear units,
- creation and updating of professional norms and defence standards,
- development and production of power plants and power supply units for field conditions,
- mobility and containerisation of logistics capabilities of the ground forces,
- development and production of specialised mobile workstations for the Czech Armed Forces,

## **Branch plant Slavičín:**

- tasks in the field of weapons, weapon systems, ammunition and explosives,

- optics, logistical support and testing,
- development of light armoured vehicle LOV-Pz,
- modernisation of the Sněžka and LOS reconnaissance and observation systems,
- production and sale of mortars and mines, ecological disposal of rockets and ammunition.

**Selected projects implemented by Military Institute of Technology in 2023**

The Military Institute of Technology is fundamentally involved in key rearmament projects of the Czech Armed Forces, such as MADR (Mobile Air Defence Radar) and SHORAD (Short Range Air Defence), which are among the most significant projects for the modernisation of the Czech Army's air defence assets, or FCS (Fire Control System) for the Czech Artillery.

**• FCS**

The aim of the project was to equip the artillery of the Czech Armed Forces with a modern automated fire control system, its integration with the command and control information system of the Czech Armed Forces and its implementation in all artillery.

**• L-39 NG**

Within the development of customer versions of the L-39 NG aircraft at Aero Vodochody AEROSPACE, a.s., aviation specialists provided independent technical supervision of the development and certification process of

the L-39 NG.A1 aircraft intended for the military aviation of a foreign partner.

**• IVC NG**

The task of the project was to provide a special and credible simulation of the action of air attack means with the possibility of firing anti-aircraft missiles on the principle of:

- of remote guidance of missiles by laser beam;
- passive optoelectronic self-guided missiles;
- radar-guided missiles or anti-aircraft guns whose ammunition meets the criteria of the WDZ of a given VVP or firing range.

**• FVZ-98M**

The aim of the project is to modernise the filtration equipment, which is designed to supply mobile assets with filtered air under WMD conditions. The equipment ensures the purification of air from dust (including radioactive dust) and from chemical warfare agents in the form of gases and aerosols.

**• AN-25**

The aim of the project is the production of mobile masts, which are intended for short- and long-term use as a carrier for user structure up to a weight of 300 kg. The base of the antenna carrier consists of a platform with ISO 1C container handles. The platform can be placed and transported on a container of appropriate dimensions and load capacity (vehicle, trailer).

**• PODTEO**

PODTEO is designed to provide full range hydrometeorological support for artillery in combat and peacekeeping operations in the Czech Republic and beyond.

The design and composition of the PODTEO kit ensures the autonomy and mobility of the meteorological team, including basic ballistic and splinter protection.

The ground segment of the STRATOM defence development project was also successfully carried on in 2023, and the project will continue during 2024 with the certification of the flight segment.

Furthermore, the filter-ventilation and filtration equipment for TATRA vehicles was modernized and modifications of the LUV LEV for the airborne troops were prepared. Other important projects were the refurbishment of AN-17 antenna carriers for the ER, projects for the Czech Armed Forces such as container workshops (4 welding and plumbing variants), tests of field equipment components, or GEOMETEO service and repair of specialized equipment.

The year 2023 was a successful one for the Military Institute of Technology, when it demonstrated very good professional interdependence of defence research, development, and innovation with the production sector, both in strategic projects within the framework of international cooperation, as well as in other technical projects for the benefit of the Ministry of Defence and other subjects of cooperation.





# GRENADES FOR THE ARMED FORCES

## NEW HAND GRENADES

## CZECH PRODUCTION

ZEVETA AMMUNITION a.s., as a traditional Czech manufacturer of ammunition and pyrotechnics, constantly develops new products and innovates existing ones. It has currently completed development work on the modernization of hand grenades, including the development of a new igniter so that the user receives a modern means of tactical use that meets all current trends in the field of hand grenades. Emphasis is placed especially on ZEVETA's ability to produce all parts of a hand grenade, including the initiation chain, self-help and under its own direction, and thus provide the Czech Republic with the opportunity to bring back to life the independent and original production of hand grenades after a long time. Mastering the production of all parts of the hand grenade by ZEVETA without the need

for subcontracting from abroad means that it is a purely Czech product produced by a traditional Czech manufacturer with more than 86 years of tradition and experience in the production of ammunition, including hand grenades. ZEVETA is once again able to offer a competitive hand grenade, which will also compete with foreign manufacturers in terms of its price.

Structurally, the new igniter consists of a lever-type throw fuse, which is secured by a transport safety pin. The igniter has a time function with a standard delay interval of 3 to 5 seconds, which can be set at the factory at the customer's request, thus preparing a customized igniter. The removal of the switch and impact mode greatly simplified the entire igniter and thus the use of the hand grenade. Hand

grenades are intended to be thrown from the user's hand and are therefore designed in such a way that their handling meets the normal handling and safety standards for this type of ammunition, i.e. protection against unwanted initiation during handling and at the moment of readiness for use.

The new hand grenade is marked as HG-22/3.5 and will be produced in several basic variants:

- The fragmentation hand grenade HGF-22/3.5 is a hand-thrown infantry grenade intended for use during offensive operations against soft targets. HGF is an assault grenade with a plastic outer shell with ridges for better grip. The body of the grenade is filled with an explosive charge that is surrounded by steel balls. When the grenade explodes, it creates an over-pressure and a shock wave, which are combi-



ned with the effect of small steel balls acting as shrapnel.

- The assault hand grenade HGO-22/3.5 is a hand-thrown infantry grenade intended for use during assault operations in built-up areas. HGO is an assault grenade with a plastic outer shell with ridges for better grip. The body of the grenade is filled with an explosive charge. The grenade creates overpressure and a shock wave.

- The thermobaric hand grenade HGT-22/3.5 is a hand-thrown infantry grenade with an increased pressure and heat effect, intended for use during offensive operations in built-up areas. During development, the effect of the thermobaric grenade filling was tested and proved against standard TNT, which is commonly used for the production of hand grenades, and the result is a composition with an effect of 170-180 % of the equivalent amount of TNT, i.e. almost double compared to TNT.

The portfolio of hand grenades will also be supplemented with reduced, training and college versions so that the user is provided with a complete program for training and using these devices.





# NEW EXPERIENCES IN CONVENTIONAL WARFARE

Two years ago, Russia launched its so-called "Special Operation", which is in fact an unjustified aggression - Russia's war against Ukraine. Russia initially waged this war according to old schemes reflecting the times of the Soviet Union. Let's leave aside the fact that the Russians entered the aggression with a catastrophic ignorance of Ukraine, its society, determination to defend itself, and a catastrophic ignorance of the Ukrainian Armed Forces. This led to significant failures of the Russian Armed Forces, especially in the fight for Kiev. Russian commanders failed in all areas of the warfare. This cost them a large number of human lives and material losses.

It is typical in the view of the use of tank technologies and the way of fighting against them by the Ukrainian Armed Forces. Russia's inability to transfer experience from other conflicts into the terms of Russian doctrine was quite obvious at the beginning of the War.

The Russians have always considered the tank an essential weapon in a conventional conflict. But this conflict shows the necessity of modern thinking and the ability of commanders and staffs to understand the new conditions on the battlefield and the new weapons used in the entire spectrum of combat activities. More than ever before, the demand for a systemic approach to conducting combat activities and the creation of complex combat formations, where one type of weapon supports another, is being enforced. It is not entirely new, but this conflict points to its absolute necessity.

Before the beginning of this War, experience was derived from the deployment of troops in an environment where the Armed Forces of the NATO states as well as the Russians during their combat operations had almost absolute air supremacy and the enemy had only limited anti-tank weapons. Except for the First and Second Persian Gulf Wars, the armoured forces were not confronted by high-quality units equipped with comparable tanks and armoured infantry fighting vehicles. The Russians also had such an experience from their deployments in Afghanistan and Chechnya, and after all, from the battlefield in Syria. Even the wars waged by the USA and NATO missions in the past years were waged in conditions of asymmetric combat, but mainly in conditions of almost absolute air supremacy, as stated.

Although airspace has always been considered an important domain of the battlefield, it has been reserved primarily for the Air Forces and the Missile Forces. Unmanned vehicles were primarily intended for conducting reconnaissance and getting an overview of the battlefield. There has been limited use of armed drones to destroy manpower in Afghanistan.



PTRS Javelin

Since the beginning of this War, we have seen the use of small drones for reconnaissance purposes and increasingly for fire guidance purposes. In combination with the modern anti-tank guided missiles Javelin FGM – 148 and NLAW, which strike the tank from the upper hemisphere, i.e. to its top, which is usually less armoured, a large amount of Russian armoured equipment was destroyed.

It was quite obvious, and it is still evident today after two years of the War, that two schools collided. The Ukrainian one, being significantly influenced by the Western military school, and the still Soviet one, which did not accept the stormy technological progress. Although the Russians also had and have high-quality technologies, they did not know how to use it. It was the misunderstanding of the new role of drones that showed the inability of Russian commanders to view



Turkish drone Bayraktar

the current battle as a complex activity in which they must engage and coordinate all relevant types of weapons within the battle.

From the beginning of the War, it was obvious that unmanned



Iranian drone SHAHED 136



Switchblade 300

means - drones - would play a more significant role. Sporadic at first, they have been used mainly for reconnaissance and surveillance of the battlefield from higher altitudes. But already the start of the use of Turkish Bayraktar drones, which were used as an anti-tank weapon and on a larger scale and tested in the Nagorno-Karabakh conflict, opened the way for this new weapon.

Unmanned means of all types - ISR (Intelligence Surveillance Reconnaissance - intelligence, surveillance, reconnaissance) and loitering munitions - have been used before, but not to such an extent.

The lack of military products such as Bayraktar and at the same time the recognition of Ukrainian commanders that the drone can effectively fulfil a role in destroying not only tanks and other armoured targets but also manpower led to the search for another solution. This was the use of ordinary civilian drones, intended mostly only for amateur activities. A large number of presented short videos showed how this tool can be used. As the war drags on, the small drones as a weapon have improved.

While larger drones are capable of destroying air defence systems, the small, commercial drones in use will not destroy this system. It soon became clear that attacking tanks and other armoured vehicles from the air with cheap, yet relatively accurate drones was the way to significantly limit Russia's numerical superiority in armoured vehicles, tanks, and armoured infantry fighting vehicles. DJI Mavic drones (a commonly available commercial drone) are used on a large scale, although this is not the only commercial type used in the War. There is almost no defence against the massive use of small commercial drones. All attempts basically failed. Here we must state that the Russians, after the first shock from the small drones used, also began

to use this new type of weapon. But, above all, tanks of the Soviet design school are vulnerable to attacks from the upper hemisphere. That is why much greater losses are on the Russian side.

Especially in the second year of the War, the use of small unmanned means, which came to be known as "Small Unmanned Aircraft Systems" (SUAS), became standard and their effectiveness increased significantly. They certainly won't replace artillery, which is still the "royal" weapon, but there are many tasks only small drones can perform.

The use of commercial drones began to gradually be replaced by much more sophisticated types of drones that use more advanced technology, but originally also from a civilian environment. A weapon known as "First Person View" (FPV) was created, originally intended for drone racing. These weapons reach high speed (180-200 km/h). Their advantage is not only their speed, but also their dexterity, or the ability to fly in difficult terrain, environment, between trees, etc. Whether controlled directly by the operator, or only partially, or by artificial intelligence (AI). They can perform the task of so-called loitering ammunition and strike when a suitable target is found, or carry out an attack directly after the target is detected by another commercial drone mentioned earlier.

The great advantage of these drones, which are already a purely military weapon, is that they can be guided by an operator who, via the camera on the front part of the drone, gets an accurate picture of the place to which the drone is being guided and can make a precise strike with an accuracy of a few centimetres. This enables accurate strikes, for example, into open entrances of combat equipment, defence structures, or houses. The current range of standard FPV drones is up to 20 km. Of course, it is decisive in what conditions it is used, how much explosive it carries, or how disturbed an environment it is used in. These attack drones equipped with artificial intelligence are being used more and more. After starting, it does not have to stay connected to the operator and performs the task independently. A drone costing a few tens of thousands of Czech crowns can destroy a tank worth hundreds of millions. The actual "loss" of this suicide drone is thus offset by its capability. Making such drones is very simple and, as stated, relatively cheap.

In the War in Ukraine, drones of all kinds were used mainly by Ukrainian troops. The initial superiority in the use of these means of combat gradually levelled off. Regarding the Russians, it can be stated that although the old, typically Soviet approach with no regard for human lives and the technological obsolescence of the equipment of the Russian troops is still quite evident, the Russians are also moving forward in introducing more modern means into their troops and are much more active in their use. According to some reports directly from the battlefield, the number of Russian drones in use has increased so much that they outnumber the Ukrainian troops in some areas of the front lines. It was definitely in the battle for Avdijivka, or in places where the situation on the battlefield was increasingly complicated - near Kupjanks. The Russians have learned to disrupt the guidance systems of Ukrainian drones or to destroy them

physically. But it is not to the extent that the Russians would succeed in stopping the Ukrainian drone attacks.

Although this does not apply to drones used in airspace, it is remarkable how Ukraine can use unmanned water drones in the fight for control of the Black Sea. Ukraine already lost most of its naval forces with the breakup of the Soviet Union, which was highlighted after the annexation of Crimea. So it has no major vessels that could compete with the Russians. Nevertheless, Ukraine almost wiped out the Russian Navy from the Black Sea.

Ukraine has developed and also presented maritime drones – an unmanned surface vessel (USV) that can move just below the surface or protrude only a small part of the hull (0.5m) above the surface. They are hard to detect, relatively fast, reaching up to 80 km/h. These drones can carry up to 300 kg of explosives, enough to destroy a ship. Since they are made of carbon fibre, they are hard to detect. In an attack at night, this naval drone is almost certainly detected too late to take any effective action. Their range can be up to 800 km. This logically requires either guidance or subsequent detection of the target using another drone, moving at a high altitude, or the use of a guidance system supported by artificial intelligence. The stated operational range creates prerequisites for an unexpected attack at a great distance from Ukrainian territory. Several destroyed Russian warships forced the Russians to move back their fleet, withdrawing from the open sea and away from Ukrainian territory. This significantly limited the possibility of using Russian warships to support the struggle of Russian forces in the Kherson region, but above all, the ability to use naval landing force was affected. The destruction of the "Toad" class landing ships is a significant step towards limiting Russian capabilities in the Black Sea. Earlier, Ukraine destroyed the Russian flagship cruiser Moskva with an anti-ship missile. The last attack that was carried out by this drone was the destruction of the ship Cezar Kunikov.

A Ukrainian surface drone that, according to the Russian authorities, washed up by the sea last November. Musk's intervention reportedly involved unmanned submarines.

Pilotless and unmanned vehicles are a trend that is changing the technologies of warfare in this period. Their use is almost a matter of course in this war and makes it possible to conduct combat activities in dynamics previously unattainable. Both sides of the War have learned to use them, and development and research bases are working at full speed to further improve them and make them more effective in striking the enemy. This is reflected in the huge loss of human life. The next direction of development is definitely determined by the progress in the implementation of artificial intelligence in these combat means. But it is a topic that will also concern the ethical standards of warfare. Machine - artificial intelligence does not distinguish between what is still correct and what is not. In the coming years, the reach of the possible effect of these means will be increased, which will erase the difference between the battlefield and the back areas even more than today. Even if today the Russians





because of the necessity to find an optimal relationship to the implementation of artificial intelligence in army systems, which already works with some systems with such intelligence. The Armed Forces will also have to change its organizational structure because the use of such systems would be ineffective in the current state.

The War in Ukraine has brought about several new topics that are very closely related to new technologies that are used by both sides and that are even originally intended for military use.

*Author: Army General (retired) Jiří Šedivý*

*Photo: Ukrainian MD, US Army, USMC, Wikipedia, X*

are attacking the entire territory of Ukraine with missiles, their technical complexity, price, and in the case of the Russians, inaccuracy, do not allow their mass use, as happened in the case of drones. Even Ukraine found a solution to hit distant Moscow.

In the conditions of the Czech Armed Forces, deep analyses of the current conduct of the War by both sides are carried out, and an optimal response to the conclusions of this analysis and its implementation in the form of modernization of the Czech Armed Forces is being sought. The Czech Defence Industry will play a major role. It is already involved in the supply of small drones to Ukraine, including FPV-type drones. For the introduction of these unmanned means, the relationship between the Armed Forces and Czech higher education and the Defence Industry will have to be changed. Precisely





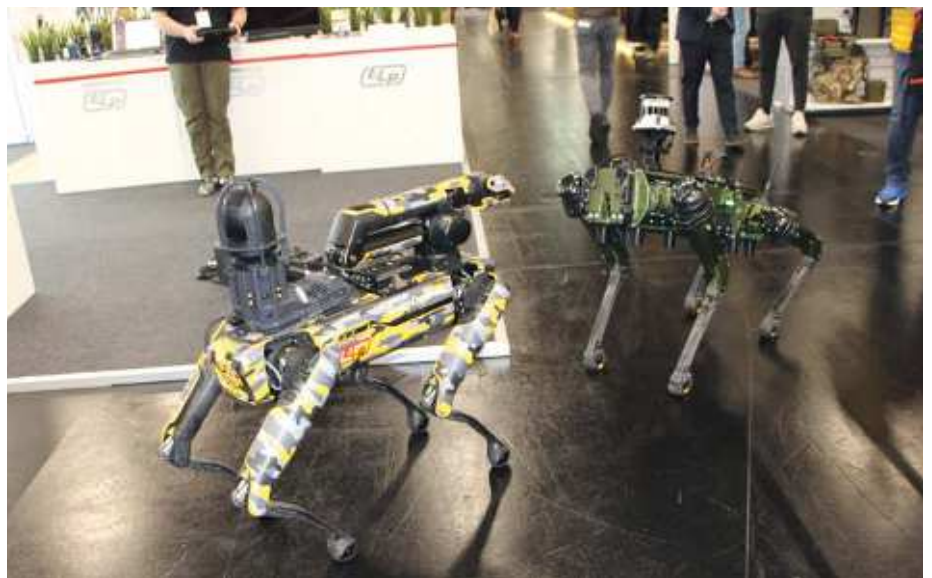
# LOOKING BACK ON ENFORCETAC 2024

We visited the Nuremberg EnforceTac Trade Fair after a year and, like everyone else, we were very pleasantly surprised not only by the scope, the number of exhibitors, the assortment of exhibits, accompanying programs, and social events.

The Trade Fair for members of official security agencies and the armed forces was held for the first time in history over three days on February 26<sup>th</sup>-28<sup>th</sup>, 2024 and was completely separated from the traditional IWA exhibition, which started the following day. The exhibition was attended by more than 12,000 professional visitors from 86 countries. In 2023, there were 7,235 of them. Approximately 730 exhibitors from 46 countries (last year 540 exhibitors) presented their solutions for internal and external security, for use in the military and civilian spheres on an exhibition area of 30,000 m<sup>2</sup>, for comparison - in 2023 it was 22,000 m<sup>2</sup>. The fairground created a pleasant atmosphere and brought together exhibitors and their most important target groups. Many of the professional visitors were involved in making purchasing decisions in their orga-

nization and enjoyed the safe environment and confidential atmosphere for high-quality discussions. Despite the high number of visitors, everything was organized very well, and even on the first day of the exhibition's opening,

there were no queues anywhere, mainly due to the fact that everyone was and had to be pre-accredited and could only pick up a ticket at the entrance via a code. This year the ticket was valid only at EnforceTac, another one was needed for the IWA exhibition.



From my point of view, the journalists were also very well taken care of; they had a designated parking lot near the main entrance and unlimited access to the press centre, where a large technical background for media communication was available.

On the first day after the end of the Trade Fair, a social evening was organized for all international journalists, where they could exchange their knowledge with each other. Diversity, innovation, and professional dialogues became the focal point of the event. Traditional top exhibitors, professional visitors, and accredited media representatives from the industry gathered at the exhibition. This event was again held under the auspices of the Bavarian Minister of the Interior, Joachim Herrmann, who stated: "With the various crises and threats around the world, EnforceTac and its highly specialized focus is more important than ever". According to the German Minister, developers and manufacturers of special security technologies are indispensable.

Progress can be seen everywhere, and here, too, the experiences from the Trade Fair have extended to the online environment.



With EnforceTac TV's YouTube format and EnforceTac's other social media channels on Instagram, Facebook, and LinkedIn, the Trade Fair team was able to extend the Trade Fair experience into the digital environment. All content in YouTube format is also available after the Trade Fair. EnforceTac's social media channels offer a simple and convenient way for industry stakeholders and other interested parties to keep up with innovations, trends, and updates from the Trade Fair.

This year's exhibition completely filled 3 large halls, and the organizers of the exhibition are convinced that this capacity will be insufficient for next year. So we can only look forward to the next exhibition!

*Eva Soukupová*

*Photo: Miloš Soukup*





# ENFORCETAC THROUGH THE EYES OF CZECH EXHIBITORS

We thank the Czech representatives at the EnforceTac 2024 Trade Fair, which took place on February 26<sup>th</sup>-28<sup>th</sup>, for the kind and professional reception. In the first edition of this year's quarterly Review for the Defence and Security Industry, we bring a brief look back at the presentation of the Czech participation and evaluation of this growing Trade Fair. We are a long-standing partner of the IWA Trade Fairs and in recent years also of the EnforceTac Trade Fair; so see you on February 24<sup>th</sup>-26<sup>th</sup>, 2025 at the EnforceTac Trade Fair in Nuremberg.

We visited Czech companies and asked specific exhibitors two questions:

- 1) **What did you present at the Trade Fair?**
- 2) **How do you assess this Trade Fair?**

## Martin Dořičák – Gumárny Zubří

As manufacturers of protective full-face masks, we presented our portfolio of these products at the Trade Fair. We presented both our traditional products and upcoming novelties such as the CM-6 in combination with a filter-ventilation unit and a protective hood also in combination with this unit.

It was our first participation at this Trade Fair, and compared to other trade fairs, we assess this event very positively. EnforceTac is exactly where professionals from government agencies and security forces meet, and this is where our products fit in perfectly. We had the opportunity to talk and discuss the experiences of both existing and potential users of our masks and thus conduct a "market survey" directly with professionals. We shared the stand with the companies AVEC CHEM and Oritest, and we also assess this fact very positively.

## Lucie Hamplová – AVEC CHEM

At EnforceTac 2024, AVEC CHEM presented a complete line of CBRN filters, a TAPR tactical half-mask, collective filters for armoured vehicles and tanks, and the AVEC MS-1 anti-chemical filter suit. The EnforceTac Trade Fair is always a welcome source of inspiration for the Czech family company AVEC CHEM. It allows direct contact with end users, and their insights from practice are always valuable feedback for the development team. As every year, also this year we managed to establish new contacts and we hope to develop them into a long-term cooperation. The pleasant icing on the cake is meeting regular customers.



## Petr Hořák – Prototypa-ZM

Our company Prototypa-ZM, s.r.o. presented itself at the EnforceTac Trade Fair primarily as a manufacturer of measuring equipment for test laboratories. At the Trade Fair, we presented the PYAW-2019 exhibit, which is used to measure the speed of a projectile and its inclination when testing protective equipment. The device can be used up to a calibre of 12.7 mm.



We assess the EnforceTac Trade Fair very positively because a large number of visitors from the professional public came to visit us. Unfortunately, a comparison with previous years is not possible, as we participated in the Trade Fair for the first time. From the experience gained, we assume that we have not been here for the last time.



# Dallmayr

COFFEE AT ITS BEST

## Tomáš Rokoský – Kartáčovna Koloveč

Our company participated in the EnforceTac Trade Fair for the first time. The reason for our participation was a change in strategy and attendance at the IWA Trade Fair, where we were a regular participant.

At the EnforceTac Trade Fair we presented:

- Cleaning kits for small arms - especially NATO cartridges - 5.56, 7.62 and 9 mm.
- Cleaning kits for weapons of larger calibres - especially barrels and chambers in the usual ranges of 23 mm - 203 mm.

Attendance at our stand was lower than at the aforementioned IWA Trade Fair, but the contacts we made were significantly more interesting for the development of future cooperation. We are now approaching new clients and are looking forward to the new challenges that these acquired contacts will bring us.



## Karel Staněk – DASTA

Just like every year, this year we have prepared several novelties for the exhibition in Nuremberg, across the range of our company. This year it was, for example, pistol holsters with a flashlight, pistol holsters with a collimator, Molle plate carrier, Molle carrying belt and other equipment components.



In the past, we regularly participated in the IWA Trade Fair, but due to the transfer of the product range to the EnforceTac exhibition, we decided to exhibit here this year.

We assess the participation very positively, the attendance and interest of the participants was great. It can be seen that this exhibition is

growing and further expansion can be expected in the future.

## Jan Leskovec – Sellier & Bellot

At the EnforceTac exhibition, we present our product portfolios for the armed forces. These are specifically pistol, bullet and shot cartridges of various calibres and projectile designs.

We assess the Trade Fair very positively, both in terms of meetings with our clients and in general. From the point of view of the number of visitors, exhibitors, and the event organization, the Trade Fair is obviously on the rise.



## Lenka Orlová – Oritest

In Nuremberg, we presented our permanent production program, i.e. a complete range of detection and decontamination products, including our new product, which is the first-ever electronic detector of chemical substances. We had the honour of exhibiting here together with AVEC CHEM and Gumárny Zubří. Our products complement each other, so I must say that this form of cooperation was also a success at EnforceTac.

Although it is a Trade Fair with a focus on the police rather than the CBRN area, I assess the interest in our products positively. We participated in the EnforceTac Trade Fair for the first time this year, and we were certainly pleasantly surprised by the interest. We managed to meet not only new potential customers but also many long-standing partners.



Miloš Soukup, Photo author



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# FOR A STRONG ARMED FORCES

On January 25<sup>th</sup>, 2024, the directors of state-owned enterprises of the Ministry of Defence of the Czech Republic met and jointly agreed to strengthen mutual cooperation within the framework of the project "For a Strong Armed Forces". A meeting of all directors of state-owned enterprises under the Ministry of Defence took place in the premises of VOP CZ. These companies are VOP CZ, VTÚ (Military Technical Institute), VVÚ (Military Research Institute), LOM PRAHA s.p. and Vojenské lesy a statky ČR, s.p. (VLS).

At the joint meeting, which was also attended by František Šulc, the First Deputy Minister of Defence, and Pavel Jahoda from the Property Division of the Ministry of Defence of the Czech Republic, the possibilities of active cooperation on joint projects were discussed in accordance with the joint initiative "For a Strong Armed Forces", which was created last year and aims to support the defence capability of the Czech Armed Forces as much as possible.

"I am very happy that we can further deepen the partnership across the state enterprises from the section of the Ministry of Defence of the Czech Republic and thus successfully continue the spirit of the initiative "For a Strong Armed Forces", which commits us to this cooperation together. On behalf of the VOP CZ,

I can only confirm that we welcome this initiative and will always strive for the maximum possible level of cooperation across state-owned enterprises from the section of the Ministry of Defence of the Czech Republic. We are also already cooperating on a relatively large number of projects. We are ready to offer state-owned enterprises our know-how and production capacities in order to jointly support the combat capability of the Czech Armed Forces, which is our joint task and goal," said Martin Šturala, the company director of VOP CZ, after the meeting.

"When else than in this difficult security situation in Europe to combine our professional know-how and implement the most effective steps possible for the Czech Armed Forces in its intensive modernization. LOM PRAHA does not

miss any opportunity to deepen cooperation with other state enterprises of the Ministry of Defence of the Czech Republic. We emphasize pre-prepared and content-targeted working visits, during which we refine existing cooperation directly in the locations of our colleagues and look for further intersections of professional cooperation," said Jiří Protiva, the Director of LOM PRAHA.

The Director of the Military Research Institute Pavel Čuda added: "VVÚ has always looked for partners for important contracts of the section of the Ministry of Defence, primarily always with affiliated state enterprises, and will continue to do so". From the newly established cooperation, VVÚ promises, in particular, wider opportunities to participate in projects using

VaVal results on the one hand, and more effective sharing of the often unique technologies and capabilities that all state-owned enterprises have on the other hand".

"We understand the initiative "For a Strong Armed Forces" as a platform to search for synergistic effects between the section companies that provide service and professional support for our Armed Forces. But we also see some space for cooperation in the area of presenting the work of individual companies to the public, which we have already verified at some events organized by the VLS, s.p., especially at last year's "Brdské stromsázení", said Roman Vohradský, the director of VLS.

The director of the Military Technical Institute, Jiří Kašpárek, also told us his opinion on initiating a new form of cooperation: "The Military Technical Institute proudly ranks among the leading representatives in the Defence Industry and fully supports the project "For a Strong Armed Forces". We believe that professional cooperation with other entities is crucial in today's complex security situation. The sharing of know-how and the integration of technical



and innovative approaches are essential for the development and integration of new defence and security technologies to build strong and effective modern armed forces. Our company is committed to the supply of high-end and reliable military equipment, and therefore we strongly believe that the partnership between state-owned enterprises brings several unique opportunities to achieve significant progress

in the development and innovation of security technologies satisfying the strategic interests of the state and leading to the modernization of the defence forces".

*Miloš Soukup*

*Photo: VOP CZ*





## BALLISTIC PANEL FROM THE BUT DESIGNED TO INCREASE THE SECURITY OF CRITICAL INFRASTRUCTURE IN THE CZECH REPUBLIC

Researchers from the Faculty of Chemistry of Brno University of Technology (FCH) in cooperation with experts from Bogges, the Military Research Institute and the Brno Research Institute of Building Materials came up with a mobile solution for the protection of critical infrastructure objects. Through successive projects and their improvement based on testing, they have developed the Ballistic Protection Panel (BOP), which, compared to the alternative of monolithic concrete walls, is more resistant to firearms and its installation is possible by human power, without the use of heavy machinery. Compared to steel armouring, it is significantly cheaper.

The security situation and the possibilities of protection and defence are a hot topic nowadays. For several years now, researchers from the Faculty of Chemistry at Brno University of Technology have been collaborating with industrial partners on the development of effective and, above all, mobile ballistic protection, designed primarily for buildings and critical infrastructure facilities.

"Current protection of buildings usually means installing concrete road barriers in front of entrances, or creating a permanent high-strength reinforced concrete monolith at the building. However, the critical infrastructure of this country, such as water treatment plants, gas plants or electricity substations, is not effectively protected against a possible hybrid attack and the subsequent intrusion of attackers," says

František Šoukal from the Technical University of Technology, who deals with the issue of ballistic protection and is part of the team of experts responsible for the innovation using special concrete.

The idea arose from the thesis "Ballistic Resistant Concretes" by Ondřej Koutný, who now works for Bogges. The thesis opened up the topic of developing a material based on ultra-high-value cement containing fib-





Ballistic protection panel after testing by multihit - front side | Author: FCH BUT, Bogges

re reinforcement (Ultra High-Performance Fiber-Reinforced Concrete - UHPFRC) with increased ballistic resistance, together with the question of methodology for designing of concrete composition and testing."

This was followed by the development of a material for BOP that at first glance resembles conventional concrete but contains a number of specific, albeit commercially available, ingredients. The main binder is a special cement. The binder also includes microsilica, a by-product of the production of metal silicon chips, which has a particle size below 1  $\mu\text{m}$  and fills the spaces between the cement. The mixture also contains water and very fine aggregates. The combination of superplasticizers, which generally allow for the lowest possible water content in the mix while maintaining fluidity, is very important for the resulting strength of the material. Finally, the mixture is mixed and casted in a special way to achieve the right result.

In the next phase, the researchers determined the bulk weight and workability of the material and performed static tests of compressive and flexural strength. After the samples were cast, the testing moved to Prototypa's three ballistic laboratories (tunnels) near the FCH BUT, where ballistic resistance tests were performed on the samples. From the result of the measurements, for example using a strain gauge, and subsequent calculations the panel thickness was determined which would still prevent a penetration by the tested ammunition and calibre.

Thus, it was verified that the 55 mm thick BOP is capable of withstanding multiple fi-

rearms fire with standard and armour-piercing projectiles up to 7.62 mm calibre and thus meeting the NATO A3 standard. "The panel thickness of 55 mm replaces more than 150 mm of conventional concrete of class C 25/30 or 25 mm armoured rolled steel", describes the main advantages of BOP doc. Šoukal.

The culmination of long-term research work is the TAČR project "Means for increasing ballistic protection of vehicles and critical infrastructure", which is currently in its final phase, in which the researchers successfully continue to advance the possibilities of using BOP. Researchers have been developing and testing entire modular walls made of manually manipulated panels which can temporarily or even permanently protect, for example, the entrance of state institutions or critical infrastructure sites.

Layering of walls offers interesting solutions:

"We have currently developed a system for NATO resistance class A4, which protects against the 12.7 mm calibre armour piercing projectile used, for example, in armoured vehicle machine guns." František Šoukal describes.

The researchers achieved this by placing two walls of BOP behind each other. In addition, the projectile is deflected from its path by an air gap between the walls, which can be filled with ordinary aggregate for greater efficiency.

Currently, a hanging system made of BOP for facades is developed and tested, and a modification of the system for fragmentation protection, e.g. against indirect hits by mortar shells or artillery grenades, is prepared. Few people know that the shrapnel from the explosion of these weapons has up to twice the impact velocity of projectiles from firearms. Ballistic panels will thus have to withstand even significantly greater destructive force in tests than before.

"Our advantage is that we can make BOPs with extremely good parameters even from relatively ordinary aggregates. We don't need high-strength aggregate, which is very expensive, and yet we get high strength and ballistic resistance values," says doc. Šoukal, referring to the important motivation of scientists in the development of BOP, which is the optimization of costs while maintaining high durability.

Since the other components of the mixture do not come from laboratory research and are commonly available on the market, the researchers managed to reduce the price of BOP to an acceptable level of about



Cross section through the Ballistic Protection Panel after ballistic resistance test with holt projectiles  
Author: FCH BUT, Bogges

25 000 CZK per m<sup>3</sup>. The UHPFRC category, to which the BOP material belongs, is normally priced up to CZK 100 000 per m<sup>3</sup>. Also, compared to armoured rolled steel, BOP is about three times cheaper for the same surface weight and ballistic resistance.

Researchers from the FCH BUT together with the Bogges company have already started to offer the product.

The BOP had its premiere at IDET 2023, where it received positive feedback.

We assume that the possible purchasers of

the BOP could be state units - especially the Army of the Czech Republic, the Ministry of Defence of the Czech Republic, the Ministry of the Internal Affairs of the Czech Republic and operators of critical infrastructure objects. Especially at a time when the defence and protection is a growing issue. The BOP system can be applied in a basic version, or it can be tailor-made for a particular object. A company engaged in the construction of civil defence facilities in family houses being now in great demand, has already shown interest in the system. "Critical infrastructure needs to be protected, which is why we came up with this innovation. Also in view of what is happening in Ukraine, the state should be ready to intensify the protection of its important objects. If the state forces would like to use this modern mobile ballistic protection system in the future, then it will be advisable to create a stock of panels, because in case of a crisis it will be very difficult to produce a sufficient amount of BOP!" concludes doc. František Šoukal from the Faculty of Chemistry of BUT.

*Author and photo: VUT*



Ballistic protection panel before ballistic resistance test | Author: FCH BUT, Bogges

## 25 YEARS OF THE CZECH REPUBLIC IN NATO

Flyover of military aircraft on March 12<sup>th</sup>, 2024 on the occasion of the 25<sup>th</sup> anniversary of the Czech Republic joining NATO. In addition to the transport Airbus A-400MS Atlas, 3 JAS-39 Gripen military aircraft and Eurofighter Typhoon aircraft flew over Prague at a height of approximately 200 m.

Photo: Olin and Tiger Cub Squadron





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# ANNUAL MEETING OF THE REPRESENTATIVE EDITORIAL BOARD

At the beginning of this year, as usual, the annual meeting of the Representative Editorial Board of the magazine *Review for the Defence and Security Industry* was held in the Conference Hall of the Ministry of Defence of the Czech Republic in DAP. The main topics were the evaluation of the preceding year and the future perspective of the magazine. Considerable space was also dedicated to cooperation with the force units of the state administration and companies of the defence and security Industry in the preceding and the coming year, but also to the discussion of the future development of the defence and security industry, its challenges and opportunities for the coming year.

Mr. Jiří Hynek - the President of the DSIA CR and the Chairman of the Representative Editorial Board opened the session and, at the beginning, introduced the board members behind the chairman's table: Dipl. Eng. Miloš Soukup - the Executive of MS Line s.r.o. Publishing House and the current Editor-in-Chief of the *Review* magazine, and Dipl. Eng. Pavel Švagr - the Chairman of the State Material Reserves Administration of the Czech Republic, Lt. Gen. Vladimír Vlček - CEO of the FRS CR, Lt. Gen. Martin Vondrášek - the Police President of the Police of the Czech Republic, and from the other side, Dipl. Eng.

Radka Konderlová - the Senior Director of the Industrial Cooperation Section, Mr. Tomáš Kopečný - the Government Representative for the Reconstruction of Ukraine and Senator Dipl. Eng. Zdeňka Nytra - a member of the Committee on Foreign Affairs, Defence and Security and a member of the Committee on European Union Affairs. Furthermore, among the members in the plenary session was, for example, Maj. Gen. Simon Michailidis - CEO of the Prison Service of the Czech Republic, Col. Tomáš Hytych - the Director of the Aviation Service of the Police of the Czech Republic, but also new members

of the Editorial Board, such as Maj. Gen. Petr Čepelka - the Commander of the Czech Air Force, Maj. Gen. Radek Hasala – the Chief of the Military Office of the President of the Czech Republic, Mrs. Milena Bačková - a long-time representative of the Ministry of the Interior of the Czech Republic from the Department of Security Policy, also Mr. Marek Svoboda - the Director of the Department of Economic Diplomacy of the Ministry of Foreign Affairs of the Czech Republic and Mr. Rudolf Klepáček - the Director of the Department of Export Strategy Management and Services of the Ministry of Foreign Affairs of the Czech Republic. More than 80 % participation really testifies to a well-functioning Representative Editorial Board.

Most of the new members of the Representative Editorial Board representing the industry attended the session: Dipl. Eng. Tomáš Opravil - VUT, Materials Research Center Brno, Dr. Milan Rollo - AgentFly Technologies, Jan Kubata - CEO of Trade Fairs Brno, Pavel Hadraba – the Executive of ABNER, Aleš Orel – the Vice President of DSIA CR for Research and Development, the Executive of Oritest, Dipl. Eng. Jaroslav Pecháček Jr. - the Vice-president of DSIA for strategic planning, the Executive Director of SWORDFISH, Maj. Gen. (retired) Jiří Verner – the Country Manager of SAAB Technologies s.r.o. for the Czech Republic and Slovakia and Miloš Balabán - the Chairman of the Prague Security Conference, z.s. Among the excused new members of the Editorial Board were, for example, Jan Hamáček – the Vice-president of DSIA CR for legislation, the Executive of GH Consulting or Army General (retired) Dipl. Eng. Jiří Šedivý for CEVRO. The introduction of the selected participants already shows what an extraordinary and unique company assembled here. Everyone publicly agreed that this structure of the participating members is very unique, which confirms their perception of the importance and necessity of the prosperity of the defence and security industry of the Czech Republic, especially at this time.

The organizer of the Review magazine's Annual Meeting has been MS Line Publishing House since the very beginning and its general partner is DSIA CR, for which the Review magazine is the main media platform. Other partners were Trade Fairs Brno - IDET, AURA, Cont-System, SVOS, VVÚ Brno, AGADOS, Explosia, Spectrasol, DIRICKX, GORDIC and Protect Parts.

The Editor-in-Chief of the Review magazine, Dipl. Eng. Miloš Soukup opened the actual program of the meeting with a short evaluation of the past year when he recalled the three editions of Reviews in 2023, which always brought almost a hundred pages of interesting information and interviews from the state administration and many articles about novelties and activities not only concerning member companies of DSIA CR, but also other important companies in the field of defence and security and, last but not least, foreign companies that seek for cooperation in the given area in the Czech Republic. It is becoming more and more evident that especially small and medium-sized companies have an enormous interest in the magazine. The Editor-in-Chief stated that it is an unbelievable fact that from the DSIA CR member base of over 160 companies; almost 120 member companies presented themselves in three editions of Reviews in



2023. This highly positive trend has all the more encouraged the Publishing House and editors, who are preparing several innovations and changes based on these results. The ever-expanding distribution of both the printed and the electronic Czech and English versions is also a progressive phenomenon.

A completely different concept of the newly prepared Security and Defence Technologies Catalogue of the Czech Republic was also mentioned here, which just this year celebrated a quarter of a century (1999 - 2024) since its premiere in the Czech Republic. Although it has been widely used by the Ministry of Foreign Affairs, the Ministry of Defence and other authorities and departments in recent years, the current technical media capabilities have already surpassed it in its original form, so we can already look forward to the completely new version 2025 - 2026, which will be available in an interactive electronic version with the possibility of continuous updating, as mentioned by Šárka Cook - the Director of the Publishing House and at the same time the Editor-in-Chief of the new catalogue.

The Review magazine for the Defence and Security Industry is published in a Czech printed version and an electronic online version in Czech and English. The main specific role of the magazine is to more concretely facilitate communication between the public and state administration and the defence and security industry in the Czech Republic but also to promote the Czech industry abroad at trade fairs, conferences, seminars, etc., as well as provide better in-

formation about the capabilities and possibilities of this branch of industry abroad. The wider professional public can see this unsalable magazine distributed within a regularly updated nominal distribution network in the Czech Republic at trade fairs and exhibitions such as IDET, ISET, PYROS or FUTURE FORCES FORUM and NATO Days.

**The more than hour-long discussion brought many interesting topics to which we will continuously return in the next editions of the Review.**

**Friendly Meeting and awarding the best ones**

In the second part of the program, i.e. at the Friendly Meeting of the defence and security community, almost 130 important guests from both public and state administration and top representatives of the defence and security industry gathered. After the initial welcome, long-standing journalists and outgoing members of the Representative Editorial Board were thanked, as well as the traditional awarding of the best products, companies, management teams and personalities for the year 2023 took place. A rich tombola provided by the participating companies and excellent Dallmayr coffee contributed to the very friendly atmosphere.

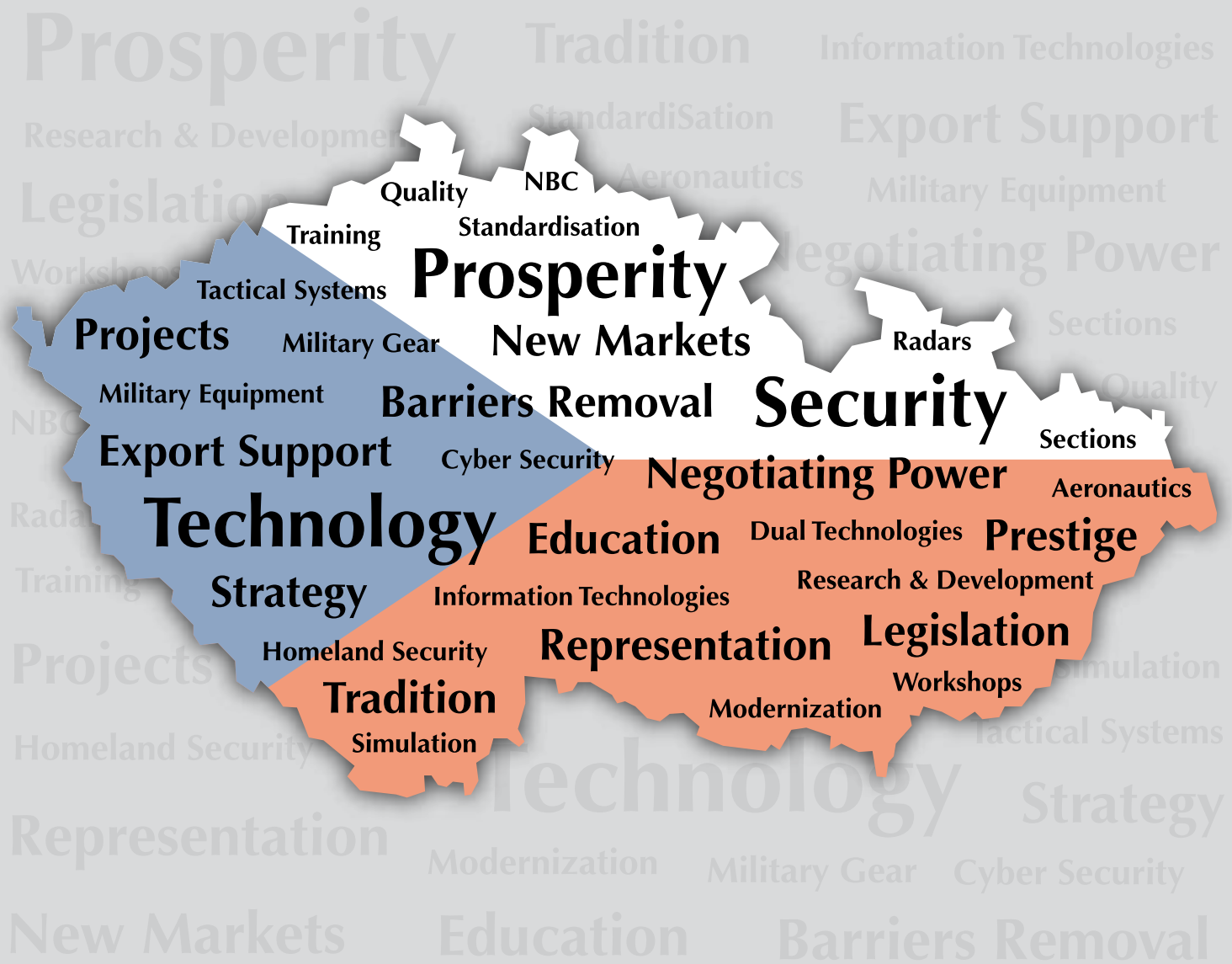
*Eva Soukupová*

*Photo: Jaroslav Jonák*





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a Safer Place**



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**Defence and Security Industry Association of the Czech Republic  
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# FRIENDLY MEETING AND AWARDING THE BEST ONES

*In the second part of the program, i.e. at the Friendly Meeting of the defence and security community, almost 130 important guests from both public and state administration and top representatives of the defence and security industry gathered. After the initial welcome, long-standing journalists and outgoing members of the Representative Editorial Board were thanked, as well as the traditional awarding of the best products, companies, management teams and personalities for the year 2023 took place. A rich tombola provided by the participating companies and excellent Dallmayr coffee contributed to the very friendly atmosphere.*

**On behalf of the organizer of this evening, MS Line Publishing House and the editorial staff of the Review for the Defence and Security Industry, and on behalf of the**

**Representative Editorial Board headed by the President of the Defence and Security Industry Association, Jiří Hynek warmly welcomed other important guests of the defence and security community of the Czech Republic.**

**Before the awarding of the best products, companies and personalities for the year 2023 began, Dipl. Eng. Miloš Soukup, the Editor-in-Chief, also thanked journalists for the first time for the long-term cooperation and support of the Defence and Security Industry of the Czech Republic.**

**The plaque with thanks has been awarded to Mgr. Pavel Lang, head of the office of the director-spokesman LOM PRAHA - a long-time experienced journalist in the military and defence-security field. After graduating from university, majoring in journalism, he**



started working as an Editor of the military magazine of the 10th Air Force in Hradec Králové. His further professional experience continued as a military journalist in the organizational units of the Air Force and Air Defence of the Czech Armed Forces in the troops in Hradec Králové, Stará Boleslav and Prague. Since 2001, he worked in the sphere of Public Relations at the Ministry of Defence of the Czech Republic. Ten years ago, he joined the state-owned enterprise of the



Ministry of Defence, the Military Technical Institute (VTÚ), to the position of the Secretary to the Director of the VTÚ Press Officer. Since March 2021, he has held the position of the Head of the Office of the Director of LOM PRAHA and the Press Officer in the state-owned company LOM PRAHA.

**The second experienced journalist is Dr. Karel Šimána.**

His professional career has long been connected with the military and defence-security area. After graduating from a military college, majoring in journalism, he successively held positions from editor to editor-in-chief. Since the mid-nineties, he has been working as a PR specialist for companies from various industries. Between 2006 and 2020, he worked as an advisor to the Speaker of the Chamber of Deputies, several deputies and senators. He used his experience in the military and defence-security areas mainly in his work for Česká zbrojovka between 2005 and 2019. Since 2019, he has been working as a media consultant for SVOS Přelouč.



**Furthermore, on this occasion, commemorative letters were handed over with thanks for the long-term cooperation and support of the Defence and Security Industry of the Czech Republic to the retired Lt-Gen Ing. Jan Kaše.**



In his professional capacity, he held many important positions in the Czech Armed Forces, such as the Director of the Communication and Information Systems Section

of the Ministry of Defence of the Czech Republic, the Chief of the Liaison Troop of the Czech Armed Forces, the Commander of the NATO Military Liaison Office in Belgrade, and was appointed to the position of the Chief of the Military Office of the President of the Czech Republic in April 2016. For many years he worked in the Representative Editorial Board and actively supported the activities of the Review editorial office and the activities of the MS Line Publishing House.

**Similar thanks also go to Brigadier-General MUDr. Zoltán Bubeník** - in his professional career he worked exclusively in the sphere of military healthcare and held several important posts in the Czech Armed Forces and NATO. He became the Director of the Military Health Agency of the Czech Armed Forces, he was the Director of the Military Health Section of the Ministry of Defence of the Czech Republic and at the same time the Chairman of the NATO Chiefs of Medical Services Committee. He was actively involved in media cooperation with the Review magazine and for many years worked in the Representative Editorial Board.

DSIA CR, MS Line Publishing House and the editorial staff of Review for the Defence and Security Industry greatly appreciate the work of our other important collaborators, especially the founding members of the Representative Editorial Board and the Vice-presidents of DSIA CR

**The commemorative letter with thanks was handed over to Dipl. Eng. Jaroslav Trávníček**, who in his professional activity worked for 20 years at the Main Administration of Armaments and Technical Security of the Ministry of Defence of the Czech Republic



in the sphere of research, development and purchase of ground technology, also worked in the chemical industry and was at the

head of the Police Engineering Department for over 14 years. He is also one of the founding members of the Representative Editorial Board of the Review magazine and for many years worked as the Vice-president of the DSIA CR.

Furthermore, **Dipl. Eng. Jaroslav Pecháček** in his professional career worked in the automotive industry, armaments and logistics. For many years he worked for the company TATRA Kopřivnice. For many years, he actively worked for the Presidium of the DSIA CR in the position of the Vice-president and is also one of the founding members of the Representative Editorial Board of the Review magazine.



Thanks also went to **Dipl. Eng. Jiří Řezáč**, whose professional career is truly unique. From 1976 to the present, he has been loyal to the Omnipol joint-stock company, where he worked as the Deputy Director General for many years. He also actively participated in the work and activities of the DSIA CR in the position of the Vice-president and is also one of the founding members of the Representative Editorial Board of the Review magazine.



**Another program was the announcement of the best products, companies, teams and personalities for the past year 2023. The prizes have been awarded for more than 20 years by MS Line Publishing House and the Editors of the Review magazine for the Defence and Security Industry. The prizes were awarded by the Director of MS**

**Line Publishing House - Šárka Cook and selected representatives of the Representative Editorial Board of the REVIEW magazine for the Defence and Security Industry.**

For the first time, a foreign company was also awarded on this occasion.

The Slovak company **UAVSAVE in the field of unmanned aircraft** received an **extraordinary foreign company award** for the results presented at the IDET 2023 Trade Fair.



UAVSAVE from Slovakia is rightfully considered one of the market leaders in the development of unmanned aircraft with individual characteristics. It presents innovative technologies adapted to modern reality, which have successfully proven in real combat conditions. UAVSAVE is a reliable partner for those looking for high-quality and efficient drone system solutions.

**The award was handed over to Mgr. Roman Vakhutkevych, the Director of the company**

**The EXHIBIT OF THE YEAR 2023 award was handed over to the company AgentFly Technologies for the GORDON X8 drone with artificial intelligence elements**



AgentFly Technologies has been engaged in research and development in the field of the aviation industry and unmanned systems using artificial intelligence, simulation and robotics methods for almost 15 years. The result is the development of several advanced technologies for use in the spheres of

defence and security, industrial inspections, or modelling and optimization of air traffic. The newest product is the Gorgon X8 multi-purpose drone designed for carrying and dropping ammunition or delivering other material. The drone is based on a modular architecture allowing the use of various on-board components and sensors according to the customer's needs. The combination of top components and advanced control software enables operation in the most demanding conditions.

**The award was handed over to Dr. Milan Rollo and Dipl. Eng. Přemysl Volf for AgentFly Technologies**

**The PRODUCT OF THE YEAR 2023 award went to SVOS s.r.o. for the MARS 4x4 combat vehicle with an integrated anti-aircraft system RBS 70NG of Sweden's SAAB Dynamics AB**



The new MARS 4x4 combat vehicle with an integrated RBS 70NG anti-aircraft system is the result of close cooperation between the Czech company SVOS Přelouč and the Swedish armaments company SAAB Dynamics AB.

The MARS 4x4 vehicle is a highly modern platform that benefits from SVOS Přelouč's long-term experience in the development, production and operation of armoured vehicles. By integrating the RBS 70NG anti-aircraft system of the Swedish company SAAB Dynamics on this vehicle, a modern and very effective means of mobile air defence was created.

This vehicle won the highest Golden IDET award together with the prestigious journalistic IDET News award at the International Trade Fair for Defence and Security Technologies IDET 2023.

During its more than thirty-year history, SVOS Přelouč has been ranked among the world's most renowned manufacturers of armoured vehicles. To date, the company

has produced more than 6,600 armoured and protected vehicles of various categories, which serve in several NATO armed forces, in the UN, OSCE, Peace Corps and many other governmental and non-governmental organizations in more than 60 countries of the world.

**The award was handed over to Karel Šimána, representing SVOS**

**The SKOKAN ROKU 2023 award went to PROTECT PARTS for excellent results in development, production and sales**



The year 2023 was a turbulent and pivotal year for Protect Parts. All in a good way and it helped the company grow. In 2023, planning began for the possible expansion of the company to include subsidiaries Protect Parts Slovakia and Protect Parts Romania. Already today, it delivers parts and semi-finished products from our Czech storage and service centre according to the customer's drawing documentation, made of armoured or high-strength materials.

There was an internal re-evaluation of the area of operation, where it was decided that it would no longer be fixed only on the Czech, and thus also the Slovak, market. Thanks to this decision, important contacts and cooperation were established in Germany, Denmark, and Sweden, but also in Austria, Romania and Poland.

**The award was handed over to Marek Pácalt, the company's Executive**

**The COMPANY OF THE YEAR 2023 award went to Rescue Trailer for its outstanding results in development, production and sales**

The trailer is designed to cover the logistical needs of the army and rescue services. It has a unique folding design that saves costs for



its transportation and storage. It is suitable both for deployment in combat conditions and for evacuation during natural disasters. It has been approved up to 3.5 t, but its load capacity is up to 9 t. It can be towed behind a car or a truck and can even be equipped with ballistic protection. It thus provides a mobile background and logistical support at significantly lower costs than other solutions.

**The award was handed over to Jan Tomeš and Jakub Tomeš – the Owner and the Manager of Rescue Trailer**

**The MANAGER TEAM OF THE YEAR 2023 award went to VELETRHY BRNO a.s. for excellent results in the field of team management activities in the past 30 years of the company's existence**



The 17th International Trade Fair for Defence and Security Technologies IDET, which took place in May 2023, was a record-breaking year with number of exhibitors and visitors in its entire 30-year history. The Trade Fair thus confirmed its position among the most important European events of its kind and, together with the PYROS and ISET Trade Fairs, was a comprehensive display of new technologies and possibilities for facing various security risks. A total of 551 exhibiting companies from 29 countries presented themselves. The Trade Fair was visited by more than 30,000 professional visitors from 41 countries and attended by members of official delegations from 35 countries.

**The award was handed over to:**

**Michalis Busios - the Director of IDET, PYROS, ISET Trade Fairs**

**Dagmar Darmopilová - the Manager of IDET, PYROS, ISET Trade Fairs**

**Nikola Lekovski - the Manager of IDET, PYROS, ISET Trade Fairs**

**Michal Svoboda - the PR Manager of**

**IDET, PYROS, ISET Trade Fairs**

**The MANAGER TEAM OF THE YEAR 2023 award was handed over to OMNIPOL a.s. Group in the field of the Defence and Security Industry for excellent results of team management activities in the sphere of electronics, radar and aviation**



In 2023, the OMNIPOL industrial group experienced several significant achievements. Less than two years after the acquisition, Aircraft Industries found new customers for the L 410 aircraft in the markets of Central Asia, Southeast Asia and Africa. Thanks to the production of unique passive surveillance systems, its subsidiary ERA has again become one of the fifty most valuable companies in the Czech Republic. And the subsidiary MESIT and partner Aero Vodochody were no less successful last year. The group also took part in many foreign events, showing up for example in Dubai, India, Kazakhstan, Romania and Ethiopia. Moreover, at these events, it did not represent only itself, but also the high technological level of the Czech industry. The management of the OMNIPOL group also took part in several very successful foreign political delegations, its representatives travelled to Asia or Africa with the Prime Minister, for example. The Group also won the competition for the best websites of the year.

And this year is particularly significant for the Group. It will celebrate its 90th anniversary in October.

**The award was handed over to Michal Hon - the Chairman of the Board of Directors of**

**Mesit, Milan Starý - the representative of ERA and Kateřina Gereková on behalf of OMNIPOL**

**The Manager of the Year 2023 award went to Ing. Milan Macholán for excellent managerial results in the joint-stock company PBS Velká Bíteš in the capacity of CEO and Chairman of the Board of Directors**



The company PBS occupies a dominant world position in the segment of small jet engines for various types of unmanned aircraft. The company anticipates continuous growth of the joint-stock company's economic indicators when a 20% increase in turnover to more than CZK 2 billion is planned for 2024.

Successes include, for example, the launch of new products on the market, including an auxiliary power unit for starting 10-ton helicopters and the victory of PBS in a demanding tender for a newly developed helicopter of one of the NATO armed forces. Furthermore, the company established cooperation with the important American companies Lockheed Martin and Pratt & Whitney and with the important Ukrainian company Ivchenko Progress. The broad product portfolio of the PBS GROUP applies to Western markets. E.g. in the production of cryogenic equipment, an important order for the Swiss institute CERN will be implemented this year.

**Pavel Čechal, the Executive Director of PBS GROUP, a.s., received the award on behalf of the CEO Milan Macholán.**

**Greetings from Mr. Macholán from the hospital:** I would like to take this opportunity to express my sincere thanks for this important award, which I greatly appreciate. I consider it a reward for the joint efforts and results of the work of all my colleagues and collaborators within the entire PBS GROUP. I am con-

vinced that this award will be an inspiration and motivation for me and the whole team for further work.

I also thank you for the long-term, very good cooperation with the editors of the Review magazine for the Defence and Security Industry, with the Ministry of Defence, with the Czech Armed Forces and with the DSIA headed by the President Jirka Hynk, whom I personally also sincerely greet and thank for support. I wish you all much success, joy and especially good health in the coming year. As I see for myself, health is undoubtedly the most important thing. Thank you and I look forward to further cooperation. Sincerely, Milan Macholán.



**The Personality of the Year 2023 award in the Defence and Security Industry was awarded to Dipl. Eng. Pavel Čuda, PhD, the Director of the Military Research Institute of the VVÚ Brno for excellent results in the field of development, research and production and for personal activities in the sphere of the Defence and Security Industry.**



Ing. Pavel Čuda, PhD was appointed to the position of the Director of the state-owned enterprise Military Research Institute five years ago, and during this period this state-owned enterprise changed radically. First of all, a new development strategy was adopted, the main goal of which was to become a reliable partner of the Ministry of Defence in the field of research, development, testing and acquisition of ground military equipment, material and logistics. Therefore, the company assumed responsibility for important (strategic) deliveries to the Czech Armed Forces, e.g. LOV-CBRN paired vehicles (80 special CBRN vehicles on the IVECO LMV platform) and the STARKOM communication jammer (8 systems on a Tatra 8x8 chassis with ballistic and anti-explosion resistance). In total, we are talking about orders worth almost CZK 7 billion. In 2022, it even managed to achieve an economic result per employee comparable to that of Škoda Auto. According to current forecasts, the company will be very successful in 2024 and beyond.

Examples of the development of the company's capabilities are two prestigious IDET 2023 awards, which the company won for its exhibits at the International Trade Fair of Defence and Security Technologies IDET 2023. He took over the award personally.

**The Personality of the Year 2023 award in the sphere of the defence community of the state administration was handed over to Dipl. Eng. Pavlo Švagro, CSc., the Chairman of the ASMR of the Czech Republic, for his personal activities in the field of cooperation between the State Material Reserves Administration of the Czech Republic and the Defence and Security Industry, and for supporting the media activities of the MS**

Line Publishing House as a long-time member of the Representative Editorial Board of the Review magazine.

Dipl. Eng. Pavel Švagr has been the Chairman of the State Material Reserves Administration since 2014. In the post-covid period, the Administration under his leadership began to work closely with the Defence and Security Industry to improve preparedness for both non-military and military emergencies. Mr. President is personally involved in deepening this cooperation, both from a material point of view and from the point of view of amending the existing legislation. He was also voted a "Manager of the Year" in the category of public administration by the management association last year, which is also a confirmation for us that we have chosen the Person of the Year 2023 award in the sphere of the defence and security community correctly. He took over the award personally.



*Eva Soukupová  
Photo: Jaroslav Jonák*



AIR FORCE RESERVE COMMAND

# DNY NATO DAYS 2024

THE BIGGEST SECURITY SHOW IN EUROPE  
**24<sup>TH</sup> NATO DAYS IN OSTRAVA**  
**15<sup>TH</sup> CZECH AIR FORCE DAYS**  
LEOS JANACEK OSTRAVA AIRPORT 21 – 22 SEPTEMBER 2024

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# FUTURE FORCES FORUM 2024 TO BE THE LARGEST IN ITS HISTORY

Czech Republic will host the 15<sup>th</sup> edition of the biennial defence and security forum, exhibition and networking within the FUTURE FORCES FORUM (FFF), taking place in Prague in the week of 14 – 18 October 2024. The primary objective is to support state institutions and organisations in the fulfilment of the political-military ambitions and commitments, as well as the development cooperation within the NATO and the EU, or with other partner countries or civilian authorities.

Prague has been a long-time hub for international defence and security community networking within the FFF events, regularly hosting national delegations from over 60 countries and showcasing the latest products and services of about 300 exhibitors. The forum is organised under the auspices of the Czech Prime Minister, Ministry of Defence, Ministry of the Interior and in close cooperation with armed and security forces, NATO structures, European Defence Agency and other relevant authorities.

The program addresses the latest trends and needs in the defence and security area and helps to achieve the much sought-after interoperability within Multi-Domain Operations environment. Furthermore, it is important platform supporting cooperation of partner countries, international organizations, law enforcement and other security forces, the private sector, R&D, and academia across the globe. In connection with the FUTURE FORCES FORUM, official meetings of NATO Working Groups will again be held in Prague, namely the CBRN Medical Working Group under the NATO Committee of Chiefs of Medical Services (COMEDS), the Joint Non-Lethal Weapons Capability Group under the NATO Army Armaments Group (NAAG), and the Dismounted Soldier Equipment User Group under the NATO Support & Procurement Agency (NSPA).

The Future Forces Exhibition will feature over 300 exhibitors in four exhibition halls. New this year – the Innovation Pavilion and the 7<sup>th</sup> edition of the LEA-DER conference & technology exhibition.

## INNOVATION PAVILION

In order to support the implementation of newly developed technologies and services in security and defence applications, the organisers have created an Innovation Pavilion in one

of the exhibition halls to present start-up and spin-off projects, university teams, research, development, technology and innovation centres under beneficial conditions.

## LEA-DER

Together with FFF 2024, the 7<sup>th</sup> edition of this Conference & Technology Exhibition will also take place at PVA EXPO PRAGUE with a comprehensive programme of keynote lectures, technology workshops and practical demonstrations of tools aimed at fighting organised crime and terrorism in all its forms.

## FFF 2024 PROGRAM

### OFFICIAL NATO WORKING GROUPS SESSIONS

#### 14 – 18 OCTOBER 2024

Annual meetings of working groups aimed at topics related to the FFF program

### FUTURE AIR FORCE CONFERENCE

#### 15 – 17 OCTOBER 2024

Pilot Training – Basic, Advanced and Tactical Training; UAS Training

## LEA-DER

#### 15 – 16 OCTOBER 2024

7<sup>th</sup> Annual Conference & Technology Exhibition – Workshops & LA only Trainings, Tools and Technologies Against Major Crime & Terror; Covert Video & Audio Surveillance; Intelligence and Cyber Security; UAV's Technology & Detection Systems; Counter Surveillance – TSCM; Digital Forensics

### FUTURE FORCES EXHIBITION

#### 16 – 18 OCTOBER 2024

International exhibition of defence and security technologies, covering exhibits from various fields

### FUTURE FORCES CONFERENCE

#### 16 OCTOBER 2024

Opening strategic level panel – Multi-Domain Operations, Future Conflicts and Operational Environment

### FUTURE OF CYBER CONFERENCE

#### 16 – 18 OCTOBER 2024

Innovations in Cyber Defence; Cyber Security & Defence – New Technologies & Trends; Cyber Security – NIS2 Implementation

### FUTURE C2 CONFERENCE

#### 17 OCTOBER 2024

Future Warfighting Concepts; Command & Control in a New Era

### FUTURE LAND FORCES PANEL

#### 17 OCTOBER 2024

Battlefield Management System

### MULTI-DOMAIN ADVANCED ROBOTIC SYSTEMS CONFERENCE

#### 17 OCTOBER 2024

Unmanned, Autonomous and Robotic Systems: Their Potential of the Future vs. Threats; Implementation in the Security Forces; Advanced Robotics Projects and AI; Cyber Resistance; Capability Development according DOTMLP; Bio Robotics

### DEFENCE INTERESTS IN SPACE CONFERENCE

#### 17 OCTOBER 2024

NATO in Space: Role of the Alliance in the Final Frontier; Space for ISR: Earth Observations Technologies & Strategies; Space Domain Awareness; Cybersecurity in Space

### HOMELAND SECURITY & RESILIENCE CONFERENCE

#### 17 OCTOBER 2024

Improving of the State Security System – Population and Infrastructure Protection in the Light of Recent Conflicts and Hybrid Threats; 3<sup>rd</sup> Conference under the auspices of the Chairman of the Committee on Security of the Chamber of Deputies of the Parliament of the Czech Republic

### CBRN & MEDICAL CONFERENCE

#### 17 – 18 OCTOBER 2024

Current and future Security Challenges in CBRN and Medical services; Research and Innovations Aspects in CBRN and Medical services

### FUTURE OF CIVIL SECURITY CONFERENCE

#### 17 – 18 OCTOBER 2024

Experience and Lessons Identified/Learned from Military and Civil Security Operations in Ukraine; In cooperation with the Association "Ukrainian Defence and Security Industry" (UADSI) and Czech Defence and Industry Association (CDIA)

### DISRUPTIVE TECHNOLOGIES & DEFENCE INNOVATIONS CONFERENCE

#### 17 – 18 OCTOBER 2024

Innovation Accelerator / Special program within the Innovation Pavilion at the Future Forces Exhibition

## REGISTRATION

The professional public can attend both the exhibition and most of the expert panels free of charge by registering online.

Up-to-date information on FUTURE FORCES FORUM events is published at [www.FFF.global](http://www.FFF.global)



**FUTURE FORCES FORUM**



**Future Forces EXHIBITION & FORUM**

**16. - 18. října 2024**

**PVA EXPO PRAHA**

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FUTURE FORCES FORUM je organizováno pod záštitou nebo ve spolupráci s



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[www.FFF.global](http://www.FFF.global)

[www.NATOexhibition.org](http://www.NATOexhibition.org)

# 18<sup>TH</sup> INTERNATIONAL DEFENCE AND SECURITY TECHNOLOGIES FAIR



28–30 MAY 2025  
BRNO, CZECH REPUBLIC



28–31 MAY 2025



Central  
European  
Exhibition  
Centre





# COMPLETE SUCCESSFUL TEST OF ADVANCED SPYDER AIR DEFENCE SYSTEM IN ITS LATEST ALL-IN-ONE CONFIGURATION

January 10, 2024: RAFAEL is pleased to announce the successful completion of a test for its advanced SPYDER air defense system in its newest configuration – All in One which was conducted by RAFAEL with the Israeli Ministry of Defense Directorate of Defense Research & Development.

The test involved intercepting a unmanned aerial vehicle (UAV) in a challenging operational scenario, achieving a direct and effective hit. RAFAEL, in collaboration with IMOD DDR&D, has successfully completed a test of the advanced SPYDER air defense system in its latest, unique configuration - All In One. The test included the interception of a UAV in a challenging operational scenario, achieving a direct and effective hit.

The SPYDER system, produced by RAFAEL, is operationally used by several military forces worldwide, providing air defense solutions against various airborne threats, including missiles, UAVs, aircraft, helicopters, and tactical ballistic missiles (TBMs). The system intercepts threats using two families of RAFAEL-manufactured interceptor missiles, PYTHON and Derby. Recently, RAFAEL introduced a new configuration for the SPYDER - the All in One, featuring an integrated radar, electro-optical launcher, advanced control and command system, and PYTHON and Derby interceptors, all mounted on a single platform.

In the test conducted last month in Israel, the SPYDER All in One system successfully intercepted a UAV in a complex operational scenario, achieving a successful interception of the target.

Brigadier General (Res.) Pini Yungman, Executive Vice President and Head of the Air Defense Division at RAFAEL, stated, "RAFAEL is a global expert and a leading developer of air defense systems that have proven themselves in combat against a myriad of advanced threats and at various ranges. Among the leading systems currently in operational use in Israel and worldwide are Iron Dome, SPYDER, and David's Sling. The success of the current test with the SPYDER All in One system represents another technological breakthrough that RAFAEL pioneered, providing solutions tailored to different evolving threats in various arenas. The success of the test is a significant milestone in developing the system against different threats and demonstrates the system's outstanding effectiveness in intercepting challenging ground-launched threats. As a significant contributor to national security, RAFAEL will continue to develop advanced air defense solutions that incorporate the latest technology for the IDF and its customers worldwide."

Configurations of the SPYDER Air Defense System are in operational use by several countries worldwide, including the Czech Republic, which signed a procurement agreement with RAFAEL in 2020.

[www.rafael.co.il](http://www.rafael.co.il)





**Military Technical Institute**

## **ANTOS-LR 60mm mortar**

ANTOS-LR is an ultralight mortar of 60mm calibre, designed from components made of high-strength aluminium-base alloys, titanium and plastics. The standardized mortar calibre (60.7 mm) allows the use 60mm mortar rounds produced in the Czech Republic as well as selected mortar rounds from NATO Countries.



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