

for Defence and Security Industry **Review**®

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The Media Platform of the Defence and Security Industry Association of the Czech Republic



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Items

ID	SKU	DESCRIPTION
100000000001	100000000001	ADAPTATION TO THE WEAPON
100000000002	100000000002	ADAPTATION TO THE WEAPON
100000000003	100000000003	ADAPTATION TO THE WEAPON
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ATTACHMENT



EDITORIAL

Dear readers,

„Our security is not a matter of course and without security there is no prosperity“, that is the motto of two ongoing events held on 19 - 20. September at Leoš Janáček Airport in Ostrava, where our MS Line publishing house is again a media partner. Unfortunately, the NATO Days, celebrating twenty years this year, and the 11th Air Force Days of the Army of the Czech Republic, have to do without visitors on the event premises due to the current emergency situation in the fight against COVID-19 coronavirus infection.

In this issue, we bring you production and news from defence and security companies, such as AURA, GORDIC, MESIT, OMNIPOL, Rheinmetall, AGADOS, Quittner & Schimek, ERA, TATRA TRUCKS, BRNO, TELINK, AIR TEAM, or TENEO. I cannot fail to mention SPECTRASOL, presenting its article on modern pro-cognitive lighting that has proven to improve health and increase mental and physical performance.

Right at the beginning you will find an interview with the Deputy Minister for Defence Industrial Cooperation of the Ministry of Defence of the Czech Republic concerning the impact of the pandemic on the Czech defence and security industry and the article on the development and modernization of the training base (fire school) of the Fire Rescue Service of the Czech Republic, the history of which began in 1985.

This issue is also published on the occasion of the upcoming FUTURE FORCES FORUM, which will take place in Prague Letňany on October 21-23, and if the current situation allows it, we look forward to seeing you at our joint stand with Defence and Security Industry Association (DSIA CR).



Šárka Cook, Editor in Chief



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Interview with the Deputy Minister for Industrial Cooperation, Ministry of Defence of the Czech Republic, PhDr. Tomáš Kopečný



Unfortunately, since our last interview with the Deputy Minister, which took place at the turn of the year, many things have changed due to COVID-19.

Mr. Deputy Minister, what impact does this pandemic have on the functioning of the section of industrial cooperation playing the key role in support of the Czech defence industry, which is 90 % dependent on exports?

In connection with closing of borders from mid-March there was, of course, significant reduction of all foreign activities. The crisis has affected all areas of our life and the economy, and we have therefore done our utmost to reflect the support of the domestic defence industry in the crisis planning

of government response to the economic downturn.

Together with our colleagues from the Ministry of Industry and Trade and the Ministry of Foreign Affairs, immediately after announcement of the crisis situation we began to prepare proposals for stimulatory measures to support key segments of the domestic economy, in which the defence industry should play an irreplaceable role. It is, of course, a long-distance run, some of the proposed areas have been addressed for many years, but I think we have moved on in many ways.

As soon as potential cuts in military acquisitions began to be addressed, we prepared an analysis proving on the basis of both Czech and foreign practice that military expenditures are first and foremost

investments with a large impact on the entire economy and the state treasury. I consider the whole debate about the importance of the defence industry for the economy, especially at the time of crisis, to be very important.

Naturally, we also ran the „new standard“ of international negotiations. Through video conferencing, we had talks with many foreign partners from business and governments, for example, I lectured at the Baltic Defence College about our defence industry and its readiness to solve crises. In cooperation with embassies, we monitored, among other things, the demand for protective and medical aids in foreign territories with the aim to help Czech companies to decide whether to invest in needed production lines and technologies.



MESIT

Could you already see how is the Czech defence and security industry coping with this crisis?

The crisis has affected everyone, there is no doubt about it - with respect to the approach to production, workplace restrictions, subcontracting outages and especially orders. But most companies are coping very well. For some of them the orders are growing at an unprecedented rate. Overall, this crisis represents a great opportunity to reconfigure supplier-customer ties, which our companies will also be able to take advantage of.

On the other hand, we will only see the real fallouts of the crisis in autumn and winter. We are already seeing the massive dismissal of workers at one of the jewels of the domestic industry, the Meopta company, although it is not primarily in connection with their production of military items.

What kind of support from the industrial cooperation section can our industry rely on?

Some few months ago, we launched the „We know what we have“ campaign. As the military says we know what we want, we add emphasis on domestic skills. The output should be an emphasis on the unique skills of our companies as well as the research and development capabilities that we have in our country, and some of them have not yet been systematically used.

That is why the Minister and I have started, in essence, a revolutionary coordination of the ambitions of the Ministry of Defence with the chancellors of all relevant public universities. We also have representatives

of domestic companies on this platform, as a functioning ecosystem of the competitive technological environment requires close coordination of these three elements - users, production (companies) and research (universities, centres of excellence, etc.).

As soon as the situation allows, we will fully resume our foreign activities to support exports, and we are planning major events in the autumn, especially with the USA, Germany and France. And we are also preparing a completely new element - the ability to support the sale of military items on the government-to-government (G2G) basis, which will fall under the umbrella of the Ministry of Defence.

Can the coronavirus crisis have an impact on the planned strategic modernization projects of the Czech Armed Forces?

I firmly believe that this will not happen. Discussions on the budget in the autumn will be important, perhaps more than ever. Our acquisition pace remains very high. Extremely challenging months of negotiations await us, directly in terms of key strategic projects, so that we can conclude the contracts that will provide the best for the army and at the same time involve the domestic industry as much as possible.

90 % of the international fairs that were planned for this year are postponed to 2021. If these fairs really take place, do you already have a plan to support the industry as much as possible?

The participation of the Czech defence



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industry companies in foreign trade fairs is very important for the support of export activities and building of partnerships. I expect that as soon as the situation allows it, we will be immediately on the spot with the Czech delegation and the national stand full of domestic manufacturers. The presence of the high representative of the

Ministry of Defence and the possibility for the companies to participate in bilateral negotiations with the key local representatives will be always ensured.

In addition to this, we are preparing the tool supporting the sale of military equipment at the government-to-government level. Our goal is to create stable mecha-

nisms that will meet the needs of the Czech defence industry for its even more extensive development and support of competitiveness in foreign markets.

Therefore, the support for companies from our side will be extended not only to projects to support economic diplomacy (PROPED), but also to projects to support economic activities abroad (PROPEA). The intention is, among other things, closer cooperation with local partners and authorities in particular country in order to support companies in establishing themselves in the given country.

In March, you participated in the European Defence Industry Summit. What was the main topic this year? What is the benefit of this summit for the Czech Republic?

This summit is the traditional platform for discussions on the defence industry at the highest European level. This year was considerably focused on the functioning of EDIDP and preparation of EDF. Many new companies, research institutions and universities, not yet focused on



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the defence research and development, are beginning to be interested in participating in international defence projects. We also discussed investments in the latest technologies as well as the topic of EU-NATO cooperation.

In the discussion I personally focused on how small countries such as the Czech Republic, can contribute with their technological know-how to European projects, Member States and the largest companies. It was a unique opportunity to present to the high representatives of the European Commission, the European Parliament, the largest European companies and the Ministries of Defence of the EU countries, the areas in which we are excellent and that our defence industry is one of the most important exporters in the world. And I am glad that this has been perceived positively and it helped to create an atmosphere that our defence industry should be much more considered in the future.

After all, the management of the European Commission's Directorate-General for Defence Industry and Space confirmed that the Czech Republic is one of the most active countries in the European initiatives such as EDIDP and EDF, as well



as the country with something to offer in the area of European space programs, in which we are already actively involved.

Although the COVID-19 crisis slowed down our trajectory a bit, we keep going on. And, of course, I will be very glad to be able to help Czech companies to approach as much as possible these high European floors.

Mr. Deputy Minister, thank you for the interview and I wish you a lot of strength in this difficult time.

Šárka Cook

Photo: Jakub Viktora

Everyone has its secrets. Are your secrets safe?

One of the most important secrets in all organizations are passwords to particular systems, servers, applications and encrypted data - so-called the privileged passwords. Compromising these secrets can have completely fatal consequences for companies, therefore they need to be adequately protected. In a special cooperation, **IMPROMAT-COMPUTER** and **AVENET** present you with a unique **BeyondTrust** solution platform. BeyondTrust is the worldwide leader in Privileged Access Management with **FIPS 140-2 Level 2** certification, and among other things provides its products to the security forces of some **NATO** member countries.

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Breakthrough innovation of NATO Codification System

The NATO Codification System (NCS) is a uniform and common system for identification, classification and stock numbering of materiel used by armed forces, so called Items of Supply. It is designed to achieve maximum effectiveness in logistics support and to facilitate materiel data management. The system is used by more than 60 NATO and non-NATO countries worldwide. One of the outputs of NCS is the largest database of codified materiel items in the world called the NATO Master Catalogue of References for Logistics (NMCRL) containing over 17 million NATO Stock Numbers (NSNs) and info about 2.9 million manufacturers and vendors.



International data exchange – way from punch cards format to XML

To keep information in the system up-to-date, it is necessary to exchange data between countries. International data exchange within the NCS in its current form was developed in the 1960's using the extant technology of the day: 80-column punch cards. Although the punch cards are not involved nowadays, the format based on them called NADEX is still used for international communication. Restrictions of this technology and processes do not allow transfer of

more enriched data sets to ensure the right item is provided to the right place at the right time – the basic paradigm of logistics. That was the reason for starting the NATO Data Exchange Redesign (NDER), the NATO Allied Committee 135 (AC/135) project to deliver a modern data exchange communications functionality to the NCS using Extensible Markup Language (XML), including a modernisation and rationalisation of NCS business rules. The NDER project introduces XML as a format for data exchange between countries. At the same time, it completely changes the process of international

communication (business rules). This is a large project that will affect all 60+ countries involved in the NCS.

AURA's contribution to NCS modernization and initiation of NDER

AURA, as a leading supplier of NCS software, participated in the modernization of the NCS from 2009. In June 2010, AURA introduced at the NCS Modernization Working Group meeting in Prague the concept "NCS Modernisation Redesign Data format + Process Redesign" which later resulted in the NDER project. As the concept of NDER represents a huge

change of NCS formats and processes, it was necessary to discuss it at many regular meetings of NCS Modernization Working Group and later Transformation Steering Working Group. AURA's experts have participated in tens of consultations with the NDER working team during development, implementation and testing. It was no surprise that the very first NCS tool that implemented the first revision of NDER specification has been MC CATALOGUE, the leading AURA's software used by 20 countries world-wide.

First testing of NDER ever

Historically the first testing of NDER communication was performed between MC CATALOGUE and the NATO Support and Procurement Agency (NSPA) in 2019. This enabled the launch of official tests of individual customers. Australia, one of the largest National Codification Bureaus (NCB) using MC CATALOGUE, became the world's first country to test NDER in August 2020. The tests were scheduled for 3 months. A group of six other countries using MC CATALOGUE will follow in November 2020. The goal is to have all twenty countries, AURA customers, tested by June 2021. The official worldwide

launch of NDER to an operational environment is scheduled for January 2022.

Impact of NDER to NCS tool changes

The changes in the NCS software related to NDER are not just about the redesign of the module for international data exchange. As each country has its own internal standards and guidelines for codification, most MC CATALOGUE users have specific customizations. All customized modules related to international data exchange (e.g. SAP interface, ERP connectors, Workflow module, ...) have to be adjusted for supporting NDER so that the system as a whole is tuned up. In addition to modifying MC CATALOGUE, AURA must also provide support to its customers for the actual transition to NDER and other related activities. Individual countries need to be trained several times, not only on the innovations that appear in the application, but also on the very principles and processes in the new XML format and new processes of international data exchange.

Support during demanding NDER tests

Due to major changes, the NCS community decided that each country invol-

ved in the NCS must test their codification tool and, indirectly, the personnel against NSPA. This will ensure the smooth launch of the new data exchange format and processes, which is scheduled for January 2022. AURA is ready to assist its customers in consultations and training personnel in using NDER related changes in the codification process and specifically in MC CATALOGUE and thus AURA's customers do not need to be worried about the transition to the NDER standard.

Proactive and customer-oriented approach matters

Through its involvement in the NDER project, AURA demonstrates a proactive, customer-oriented approach, a high level of professionalism and also that it takes its commitments seriously. Thanks to these values, MC CATALOGUE has been the world's number one codification software. By an active involvement in the NDER challenge, AURA again showed the real meaning of the statement "We don't make contracts, we build partnerships".

Text: Miroslav Padalík

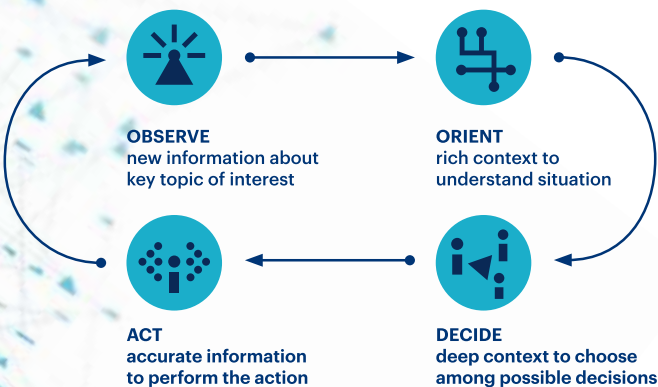
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AURA bets on Publi Pro

Life in today's society is marked by a rapid consumption of content. It demands the availability of materials anywhere, it prefers time independence, and data security is a very discussed and important topic. If the users gain an unrivalled added value in addition to the regular service, they have a feeling of uniqueness and detached view of current times.

Our documents in our own application

We are a medium-sized company with several dozen employees and we work with a large number of documents every day. As their flows are different, we were looking for a modern solution for document distribution that would meet our needs. We placed great emphasis first of all on fast publishing, file security, and easy access to the documents also in the offline mode. We lacked feedback on reading individual documents and obtaining data from them, which we consider important for the company management.

We wanted a quality platform, tried and tested, continuously developed and adapted to customers, focusing on efficiency of distribution and higher protection of internal documents.

Time for a change

Our company started to use a solution based on the Publi Pro platform. With anticipation, we installed in our devices the application for companies with our own design, and waited for what would happen. We were worried about the multiplatform environment but in the end it did not even matter which system we used. Publi Pro documents are without any problem compatible with iOS, Android, Windows and macOS.

What to put in?

We gained a new space, or rather electronic library with practical possibilities of use. At the beginning, we made useful documents available in the application library. However, our company has much more sensitive materials for internal use, which must be conditioned by individual approach. A particular user may open and download them only after logging in.

The documents are sorted into categories,

supplemented with metadata, and the work with them is very fast. We have gradually added into the application company directives, regulations and some strategic documents of the company. In addition, we have acquired a modern marketing tool as the downloaded documents can be interactive, multimedia and their attractive design captures users' attention. Moreover, they are responsive so that they are easy to read on a computer as well as on a small mobile phone screen just like common eBooks. Publi Pro uses the term mBooks just because of the multimedia and multiplatform combination of common text and tables, photographs, videos, etc.



Security with encryption

Documents publication and availability is managed by the administrator who uploads the documents, categorizes them and manages the access rights. With the implementation in our corporate systems, we have also gained the same possibilities of login as we were used to.

Security is an essential feature of distribution today. Protected documents are encrypted in the device and they are accessible only if the administrator grants the right to read them. However, we cannot copy and forward them from the application and thus from the device. On the other hand, publicly accessible documents can be read in the web library without restrictions.

Formats

The format of the document does not matter. Every user's priority is to read the material easily on a computer or mobile phone and to have it available anytime. We

are used to reading eBooks, PDFs, using images or watching videos, and the most important for us at the end is their content. Publi Pro can open other formats in applications designed for this purpose.

Feedback

And one more interesting thing. In our company, we organize training courses that end with tests. We no longer have to travel to the headquarters and waste our time and money. Our trainers create their materials in the editor and after publishing they immediately see who has downloaded and opened them. With the help of the interactive mBook, we can study anywhere and anytime. When we complete the tests, the results are sent to the server, where they are available online. We can work in exactly the same way with a survey or study literature for self-education.

All in one place and easy

Gradually, our company library has been growing. Administrators, in accordance with the licence conditions, regularly publish in the library electronic newspapers and magazines purchased for the needs of the company.

When the number of downloaded books increases, users appreciate the My Books section. As the name suggests, all downloaded and purchased books are stored here for easy searching.

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Text: Pavel Hanousek

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SUCCESS STORY

The Lynx infantry fighting vehicle is a completely new solution for the Czech Republic. But are you aware that Rheinmetall has been a well-established partner with them for many years? Rheinmetall has about 1,000 employees who work at three branches located in Trmice and Chabařovice.

Rheinmetall has a history of extensive localised content, ranging from training experience to technological expertise, to comprehensive centres of excellence in military vehicles.

Rheinmetall is both ready and able to enhance cooperation with the Czech defence industry. It is time to write a new chapter.

www.rheinmetall-defence.com/Lynx

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Starting the business.

In few months, there will be 30 anniversary, when the partners Jiří Šimek and Wilhelm Quittner started the first negotiations with foreign manufacturers on business cooperation for supplies of electrical components. Today, only few people realize how difficult these beginnings were. From the current point of view, it seems obvious that foreign manufacturers provide the local representative with a regular salary, preferably a company car and other benefits. At that time, however, it was an uncertain market for foreign manufacturers, so their offer was simple - here you have our perfect products, invest in the first warehouse and the proceeds from the sale will be your profit. Thus, there was no choice but to invest previously hard-saved funds in a very uncertain investment, the uncertainty being multiplied by the very unknown potential of the market at the time. The first five years of such a business meant great self-renunciation, not only for the founders, but also for the first two employees, who during that period were persuaded for such a risky career.



Suppliers.

Quittner & Schimek (thereinafter QS) initially offered a wider range of electrical components, including logic integrated circuits, LED and LCD displays, or miniature PC-104 computers. This large range gradually proved to be unsustainable due to the relatively small potential of the domestic market and considerable competition from suppliers. The company has therefore decided to focus on the area of precision connectors and these parts form the core of the business till now. The basis of success was the good selection of business partners at the beginning and, at the same time, the ability to persevere in cooperation, which has been successfully developed in the long term. The most important partner is Amphenol, which had only fifteen production plants 30 years ago and currently manages one hundred more. QS is one of the four largest European distributors of Amphenol for Aerospace and Defence. This is a very good position, especially in the situation where the remaining three distributors are large American companies. Other important long-term partners include TE Connectivity, formerly Tyco Electronics with well-known brands such as Raychem, AMP and Deutsch, as well as the shrink material manufacturer Hellermann-Tyton and other companies such as Glenair, Leach or DMC or Ideal with its precision tools.



Projects in aviation technology.

The first major QS business project was the L-159 aircraft at Aero Vodochody, followed by the Alenia Spartan C-27J and Sikorsky S-76C/D and UH-60M projects, which kept this customer in first place among all other customers for 20 long years. The cooperation continues successfully on the new L-39NG program. As part of other production activities, QS also supplied its products, for example, to the Eurofighter or Pilatus PC-7, PC-12 and PC-21. Deliveries of boxes and wiring harnesses for Safran (formerly Zodiac or Driessen) are constantly running with final installations in Airbus and Boeing aircrafts. All of these programs have enabled QS to gain a very good overview on the components being used in aeronautics, and



this extensive practical experience is then available to all other customers. This is concerning, for example, the L-410 program in the Aircraft Industries, but also all other domestic manufacturers of small aircraft and the like abroad. Today, QS supplies all kinds of parts being used in the aircraft electrical installations, while a wide range of these items is available from its own warehouse stock.

Manufacturing of electrical assemblies.

In 2000, QS launched its own production of wiring harnesses and a wide range of electrical cabinets and panels. There is currently over 150 workers in workshop, focused for deliveries for aviation and defence technologies. In the field of military procurement, the largest customer is the entire Rheinmetall Defence group, for which QS manufactures an almost complete set of wire harnesses for PUMA vehicles intended for Bundeswehr. The company also participates in prototypes of Lynx and Boxer vehicles being prepared for the Australian LAND 400 project and for other countries. Various partial deliveries for the PzH 2000, Leopard 2, Marder, Büffel, Skyshield and Skyguard programs are also important for QS. Part of the deliveries is also directed to the second participating company, KMW - Krauss Maffei Wegmann. Other customers include all major domestic manufacturers of ground equipment as well as well-known foreign companies such as Thales, Honeywell or Safran Défense. It is not possible to name all partners here.

Assembly of MIL connectors.

The core of the QS business range for domestic and foreign deliveries consists of circular connectors manufactured according to the US MIL standards and increasingly also according to the European EN or VG standards. QS was the first company in the former Eastern bloc obtaining the permit for assembly of these connectors, entitling to deliver with original markings, including deliveries for the Aerospace & Defence. The connectors are operatively assembled from the basic parts according to the current customer requirements. QS is authorized for the ten most used type series and has a stock of parts worth over CZK 100 million, making it one of the few largest European assemblers. Newly preferred RoHS directive compliant parts with Ni or Zn-Ni surfaces, stainless steel or bronze housings and accessories are also available.

Connectors and fiber optic sets.

QS has also been focusing on the interesting area of Fiber optics for a long time. Already in 1994, the sister company SQS Fiber Optics has been founded, employing now more than 200 workers dedicated exclusively to this area. SQS is primarily focused on traditional telecommunications and special industrial applications. For A&D customers this company coordinates QS deliveries using its own warehouse of parts and the above-mentioned assemblies, while assembly takes place at SQS using precise technology, including tests according to very demanding telecommunication or other required standards.



Comprehensive offer of Quittner & Schimek s.r.o

- **Consulting services on selection of electrical components including tools**
QS supplies tools from TE/AMP-Raychem-Deutsch, Glenair, Ideal and DMC, with authorization for repairs and calibrations
- **Deliveries of a full range of electrical parts for manufacturers of ground and aerospace equipment**
Possibility of contracting stock, or kitting or stock management at the customer - BIN Management/Kanban
- **Creation of documentation for wiring harnesses and other electrical assemblies**
- **Manufacturing of electrical assemblies, including cabinets and other mechanical parts**
- **Production of fiber optic sets, also hybrid design with metallic parts**

Rheinmetall to Join NATO Days on Event's 20-year Anniversary

NATO Days in Ostrava & Czech Air Force Days is celebrating its 20-year anniversary at the Leoš Janáček Ostrava Airport on September 19-20, with organisers using the occasion to thank members of the Czech Republic's Integrated Rescue System (IRS) and Armed Forces, who have been on the frontline in fighting the coronavirus pandemic.



NATO Days in Ostrava & Czech Air Force Days is one of few events in Europe and the only one in Central Europe that will take place on its original date with slightly renewed format due to Covid restrictions. The general public can follow the event live on Czech Television and the internet only. Rheinmetall Defence, will be participating at the event and showcasing its three divisions – Vehicle Systems, Electronic Solutions, Weapon and Ammunition – all briefly introduced as follows.

Vehicle Systems

The complex demands placed on modern military vehicle systems today can only be met with consistently modular vehicle families that are therefore capable of multiple missions. They must always be both flexible enough to provide answers to future challenges and also well thought-

out enough to enable integrated system logistics.

Only in this way can fundamentally different requirements be reconciled. After all, a multitude of competencies are in demand: Protection against new types of threats, the ability to be deployed in remote areas, extreme off-road capability, high payload and effective weaponry. We manage to put together compositions that are almost impossible, also thanks to a product range that hardly any other manufacturer of military vehicles can offer.

Electronic Solutions

As in almost all areas of life, information and its availability is the decisive factor for successful action – this is particularly true in the military context. Thanks to new technologies, the quality of information is becoming the determining factor in

every military operation and information superiority a key element for operational success.

The networking of functional chains is also becoming increasingly important in the global fight against crime and terrorism.

Thanks to our broad technology base in defence electronics, we have the right solutions for all these requirements. Our product spectrum ranges from reconnaissance, fire control and command systems (C4ISTAR) to drone systems for various applications. Always with the possibility of integration into an environment based on the information technology networking of platforms, individual soldiers or military units.

Weapon and Ammunition

Security has many facets. We cover the decisive ones through our three divisions. Firstly, to secure the sovereignty of information. Secondly, to ensure the ability to move freely under all conditions and, thirdly, to respond effectively when important social values, national borders or public security are severely threatened. Our Weapon and Ammunition division stands for this response capacity.

Not only have we been international technology leaders in this specific sector for decades, but thanks to this experience we are also experts when it comes to mastering the entire system. Only the highly complex combination of gun, ammunition, charge and fuse technology enables a precision and effect that is unequalled internationally.

Our product range is similarly impressive – in the medium and large calibre range, it extends from electronically programmed

medium-calibre ammunition to seeker-fused ammunition for artillery. It also includes propulsion systems, such as artillery and mortar charges, propellant powders and combustible mouldings.

Integration into Rheinmetall's global supply chains presents major opportunities for Czech firms

NATO Days are always an excellent opportunity for companies to not only showcase their production, capabilities and solutions, but also to connect with relevant people working in the industry and experts in various fields, to share knowledge, build new partnerships and support existing ones.

Rheinmetall is a committed proponent of the localisation of production, and its industrial partnership programme in the Czech Republic exemplifies how this can lead to investment, jobs and export sales. Rheinmetall has vowed that, if it succeeds in the Czech Republic's ongoing tender for infantry fighting vehicles (IFV), it will set up further design, production and support operations in the country, establishing a broad network of Czech suppliers for Rheinmetall systems and components.

Rheinmetall is in the process of partnering with CzechTrade to find local suppliers for assembly parts, in particular precision castings, sand castings, and metal molds. The German company intends to incorporate this expanded network of Czech suppliers into its existing global supply chain for the LYNX KF41 IFV which it has put forward for the tender, as well as for other defence products which it sells and supports worldwide. This will open up significant opportunities for the Czech defence industry, not only through local industrial participation, but also through integration into Rheinmetall's global supply chains.

Already for several years, Rheinmetall has been mining the rich seam of qualified, talented and skilled engineers that exists in the Czech Republic.

"First-class engineering is key to everything we do and the Czech Republic – right next-door to us – is where we can find it. We see a great future for this co-operation for Rheinmetall's activities in world markets, where we sell and support

over 700 different defence products," says Oliver Mittelsdorf, Senior Vice President Sales at Rheinmetall Defence.

The country is already host to more than a thousand jobs at three divisions of Rheinmetall Automotive located in the region of Ústí nad Labem, while Rheinmetall Defence has been a long-standing customer of numerous Czech defence suppliers, including Ray Service, Česká zbrojovka, Quittner & Schimek and VOP CZ. Rheinmetall's industrial partnership programme in the Czech Republic was well established before the current IFV tender got underway, so further co-operation would build on solid foundations.

Quittner & Schimek – a Czech producer of cable harnesses and electromechanical assemblies – has been involved with the LYNX KF41 from the very beginning, developing the cables for the first prototypes of the armoured vehicle. The tie-up between Rheinmetall Defence and Quittner & Schimek has already produced initial export-related revenues worth millions of Czech crowns through Rheinmetall's participation in the Risk Mitigation Activity (RMA) phase of Australia's LAND 400 Phase 3 programme with the LYNX KF41, which is equipped with cables designed and manufactured by the Czech firm.

Rheinmetall has also extended its partnership with Ray Service – an established partner that produces high-quality com-



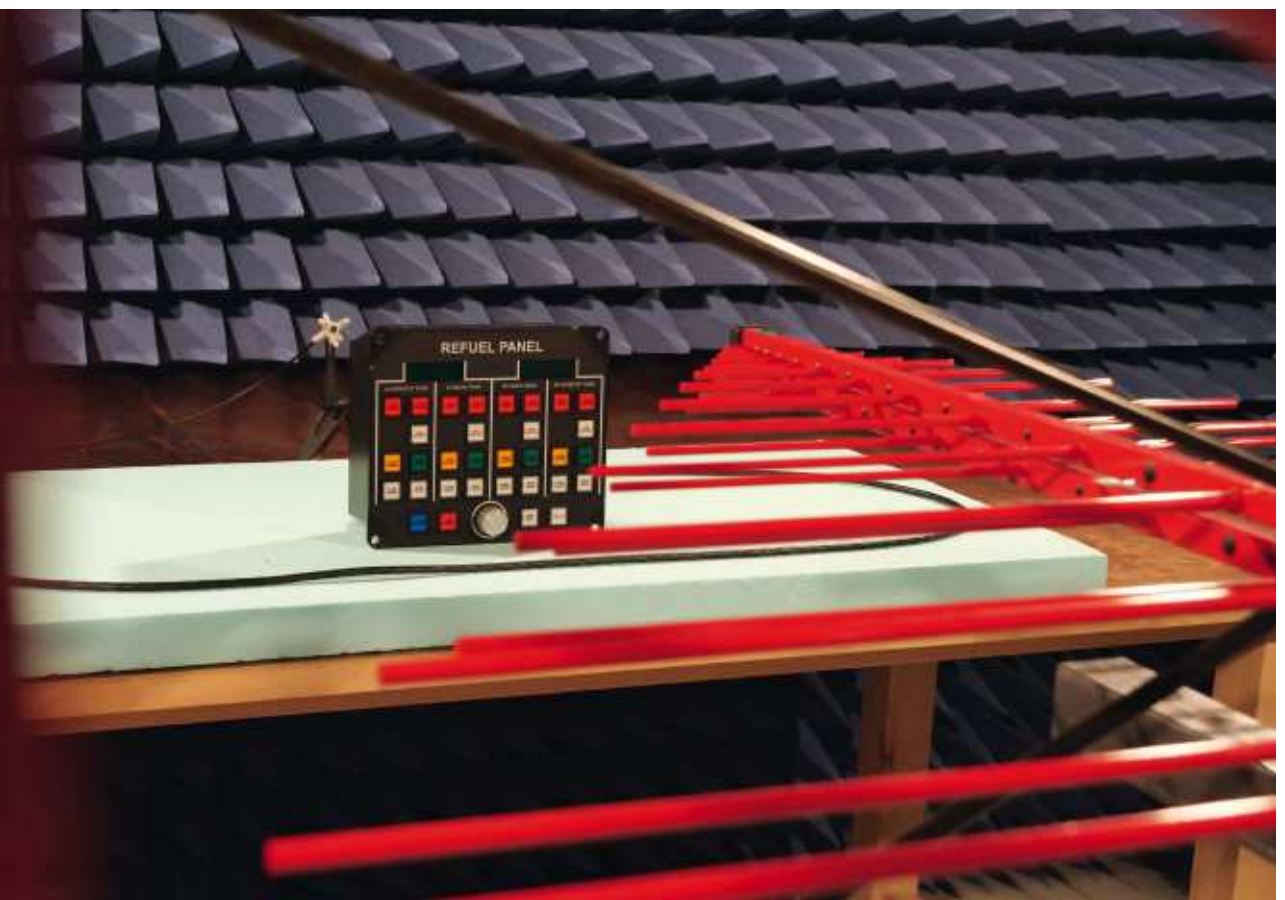
ponents for several Rheinmetall programmes in Germany and Australia – to include the development and production of the lighting system for the LYNX KF41. And Rheinmetall announced last year that it would build the crucial LANCE turret system for the LYNX KF41 at its Ústí nad Labem production plant, creating many high-skilled jobs in the process.

"The Czech Republic has a golden opportunity to give the LYNX KF41 a distinct strand of Czech DNA, which can be leveraged through integration into Rheinmetall's global supply chains. Our strong export-driven strategy will help generate significant revenues for Czech suppliers, which will in turn create a rich pool of educated, qualified and skilled workers in the Czech Republic to benefit the country for decades to come," says Oliver Mittelsdorf, Rheinmetall Defence.



Safe Flight with Fuel Metering and Refuelling Systems

MESIT, a member of the OMNIPOL group, participates in research projects in the field of aviation and is a supplier of instrumentation for almost all domestic players in the aviation industry. It constantly offers its customers new design solutions, innovated technological procedures and improved software tools that provide users with efficiency, safety, and above all economic savings. The history of this traditional Czech company dates back to 1952. Today, it is one of the largest employers in the Uherské Hradiště district, employing almost a thousand qualified professionals. Sixty of them specialize in the research and development of new products, especially aircraft instruments. The fuel level measuring process is a sophisticated and technically demanding scientific discipline.



Fuel level? Essential information for a safe flight

Information about the fuel level is absolutely essential for a safe flight. This information is gathered using so-called

fuel gauges, which are systems for measuring and evaluating the amount of fuel in the tank. In addition to traditional types of fuel tanks (rubber, auxiliary side or suspended tanks), there are increasingly popular integrated tanks,

which can form up to the entire internal volume of the wing available. For this reason, a number of other aspects need to be taken into account when developing a fuel metering gauge system, such as ground pressure filling,

aerial refuelling, signalling of the minimum and maximum amount, increased system safety and reliability, extended time to overhaul, etc. Aircraft fuel metering systems have thus become a very complex development target, requiring not only theoretical knowledge, but also experience and system skills. Previously used conventional float level transmitters (now used, for example, in the automotive industry) are no longer able to provide the required properties and accuracy, and therefore had to be replaced by complete sets of contactless transmitters intercommunicating via agreed electronic buses and by digital/computer processing of measured data, its evaluation, displaying and connection to other aircraft systems.

What is the purpose of aviation fuel gauges?

Aviation fuel gauges make it possible to fill the required amount of fuel according to the planned flight (so-called flight plan). A lower amount of fuel than specified can directly threaten the flight safety, as it affects the flight range. On the other hand, a higher amount of fuel unnecessarily increases the weight of the aircraft. This for example, reduces the required weight of the transported cargo and worsens the economic parameters of the operation. Sophisticated systems of aviation fuel gauges allow the setting of the maximum (optimal) level of fuel and automatically disconnect the refuelling equipment after reaching the set level of fuel in the aircraft's fuel tank. This function is especially important during pressure filling or during in-flight filling of integral tanks in the wings. Its failure would result in severe damage to the wing. Fuel gauges allow continuous monitoring of fuel level in individual tanks, monitoring of the fuel transfer system and provide information on the proper functioning of the aircraft's fuel system. They inform the pilot about the level of fuel available and thus the range of the flight and conditions of its safe completion. They also indicate the emergency fuel reserve in the tanks so that the pilot can still take the appropriate measures to land safely.

Capacitive level gauges to increase measurement accuracy



Capacitive fuel gauges eliminate the fundamental problem of all previous design solutions – moving mechanical parts. They increase the reliability and service life of the system as well as the measurement accuracy. At present, capacitive fuel gauge systems with micro-processor processing of the measured capacity (corresponding to the submersion height of the fuel gauge), permanent measurement of temperature and relative permittivity of the fuel are being designed. Everything is software-evaluated, including the relevant compensations of changing fuel properties. This makes it possible to achieve measurement accuracy with a deviation between the actual and measured value of less than 1 %.

Decades of development of fuel metering systems at MESIT

MESIT has been developing and producing highly specialized products and systems for more than 68 years. Their quality is verified in the most demanding sectors, such as the aviation or military industry. The development of systems for determining fuel height (weight) has been carried out at MESIT for several decades. Fuel metering systems developed and certified recently, such as those for L-410NG, L-159T1 or EV-55, are based on the knowledge and many years of experience in the development of systems for determining the fuel level in a number of aircraft of Czech manufacturers, namely L-410UVP-E20, L-39, L-59 or L-159. The design and location of fuel level transmitters, which are part of the entire

fuel metering system, represent a very distinctive matter that MESIT addresses for each type of aircraft separately. It is only possible to adopt the principle of solution used but the specific design process is always unique depending on the aircraft type. The development of a fuel metering system and its certification are an integral part of the creation and certification of the entire aircraft. The system then changes only when the aircraft needs to be upgraded. The designed fuel metering systems must always comply with RTCA/DO standards. Most systems, especially the newer ones, are connected to the digital on-board buses or directly to the aircraft's on-board computer (flight management system).

All MESIT fuel metering systems are characterized by a high degree of safety and reliability, independent indication of the fuel level in individual tanks or wing sectors (a separate independent system is applied for the right and left parts of the wing). The systems comply with the current hardware and software standards (according to RTCA/DO-160 and RTCA/DO-178). MESIT can therefore, as one of the few companies in the world, provide the entire life cycle of a fuel metering system for different types of aircraft, starting with cooperation in creating specifications, subsequent development, certifications and final production of serial units, including comprehensive technical, warranty and post-warranty support. All this can be ensured thanks to our own development laboratories and highly qualified experts in technologically interconnected companies of the MESIT group.

Battlefield Announcement System VICM 300 saves lives

MESIT (a member of OMNIPOL Group) is a significant manufacturer of tactical communication systems and a reliable partner of the Army of the Czech Republic. The company manufactures and supplies complete solutions of tactical radios and vehicle intercoms, including personal headsets. Following its experience in R&D of defence industry products, MESIT has developed and launched a system for loud broadcast to vehicles' surroundings, the so-called Public Address (PA) System – VICM 300 Battlefield Announcement System, designed to respond to current and future military requirements.



Contemporary military engagements provide new experience, perspectives and knowledge. Combat operations pose threats that must not be ignored and should be considered as a challenge to increase the safety of armed forces by improving their equipment. A characteristic feature of ongoing missions is the relocation and operation of troops in built-up and densely populated civilian areas. Operating units transported in combat vehicles should be able to actively communicate with the civilian population directly from within, providing the crew with ballistic protection. When dismounting from a vehicle, soldiers are exposed to an excessive and completely unnecessary risk of attack, whether that of a sniper, civilians, or IEDs explosions. Therefore, the need for verbal communication with the locale proves to be absolutely crucial (however underestimated until recently) as it helps to alleviate tensions on all sides and reduces the probability of unintentional escalation of conflict and unpredictable reactions.

The latest tactical PA system by MESIT

Modern army forces realize the necessity

and justification of safe verbal communication. For many years, this trend has been perceived at international exhibitions of defence technologies and the aforementioned equipment, often referred to as Public Address (PA) or Battlefield

Announcement System, has become a part of new combat vehicles. MESIT identified the need to address the issue long time ago and therefore it has extensive experience in this field. It has been actively involved in several projects abroad, including successful development and consequent production of the PA-SAM system. A significant addition to MESIT portfolio is the tactical PA system VICM 300 Battlefield Announcement System.

Easy installation and durability

VICM 300 Battlefield Announcement System consists of a control unit and loudspeakers. The control unit, being the heart of the system, is installed inside the vehicle. Highly durable loudspeakers may be mounted on the rotating turret or the body of a combat vehicle. VICM 300 can be operated as a completely autonomous system. The installation can be easily performed on military and police vehicles, vessels, on mobile command posts or advanced bases, with virtually no limitations. The durable design allows the device to be used even in extremely demanding off-road and climatic conditions.

Compatibility with the intercom

MESIT understands the importance of bringing added value to the end user, therefore as a manufacturer of compatible internal communication devices of the VICM series presents a single fully functional and interconnected unit. The compatibility enhances the basic tactical features by possible routing of signals from individual radios directly to the PA system loudspeakers. If necessary, vehicle personnel can use translators at a command post and transmit their messages directly to the PA system.

Tactical range of hundreds of meters

The essential features of the system include the ability to address a vehicle's surroundings to distances of up to several hundred meters, easy use and volume controlled external loudspeakers. In addition to live voice communication, pre-recorded announcements can also be broadcast in any language. This feature is an absolutely necessary prerequisite for deployment in foreign military operations.

VICM 300 Battlefield Announcement System is a new and promising device of a great potential for the future. High performance integrated circuits, sophisticated technical solutions and technologies guarantee the reliability of the product in real combat situations. The system is fully compliant with the requirements of military standards MIL-STD, DEF-STAN, etc. Close attention was also paid to the device's resistance to electromagnetic field effects. The VICM 300 system, developed and manufactured in the Czech Republic, represents a specific offer to modern armies to protect the lives of soldiers and civilians.

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UVA 500 water treatment plant



Modern pro-cognitive lighting increases mental and physical performance, improves health and helps in stressful situations

Light falling into the eyes has a great impact on our present and long-term condition. It affects the quality of sleep, health, physical performance and mental resilience. Proper lighting is beneficial. Otherwise it can do harm.

The rhythm of life has evolved from the alternations between day and night since time immemorial. In daylight, we are prepared for activity and performance, while in the dark, we rest during sleep. For many people, however, this relation between daylight and night darkness is disturbed. The problem also concerns workers in the security, protective or rescue services and in commercial organisations. When working, people commonly stay in unsuitably lit areas and during night shifts, they even have to stay awake. Our cognitive abilities deteriorate, the overall performance drops and our physical and mental health worsens under poor lighting in the form of low-quality fluorescent tubes or LED lights. The adverse impacts of poor light should therefore be prevented and mitigated. This can be achieved by application of bio-optimised lighting with spectral composition and other properties that are maximally approximated to the natural daylight to which human physiology is adapted.

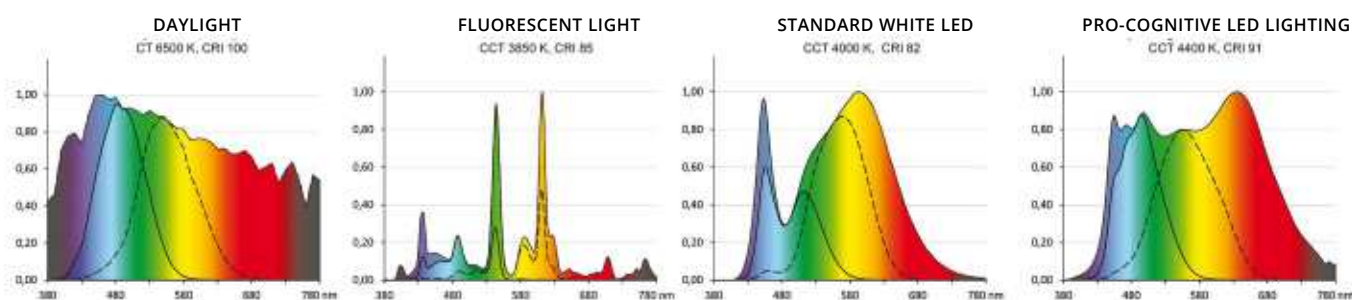
Over the day, wakefulness, performance and mood are supported by the blue spectral component

We must realise that since time immemorial, our daily (circadian) rhythm has been naturally synchronised with the sunlight. During the day, the sun shines on us with a balanced spectrum, which contains all wavelengths of the visible spectrum, i.e., all colours. The representation of the blue and green components is a signal that it is the day, therefore time for activity. This light activates production of serotonin in the body, which helps achieve full wakefulness and concentration, speeds up our reactions, increases the performance as well as the speed and quality of storing and calling the short-term memory. It also heavily affects our emotions and resilience in intense situations. Serotonin conditions the production of melatonin, an important hormone that is created in the epiphysis only at night in darkness. It has numerous crucial functions in the body. It acts as an

„envoy“ of a central clock, which starts regeneration and reparation of all tissues and organs, improves both falling asleep and the quality of sleep, thus contributing to the quality of the cognitive functions. It acts as an antioxidant, relieves the body of dangerous free radicals and has anti-inflammatory and anti-cancer effects.

Correct production and function of the mentioned hormones in the body ensure that people who work, study or perform mental or physical work in daylight or in artificial lighting resembling the sunlight achieve better results and higher resilience to stress. On the contrary, the performance and mood drop when working under poor lighting.

The quality and properties of the lighting render a huge potential to organisations that need efficient, resilient and balanced workers and teams. If there is not enough daylight coming into the space, special lighting can be a solution in addition to sun tunnel systems,



Comparison of spectral composition and biological (full curve) and visual (dashed curve) efficiency of daylight, fluorescent light, standard white LED and bio-optimised pro-cognitive LED lighting, source: Lenka Maierová, ČVUT UCEEB

for example. These bio-optimised light sources simulate and substitute natural daylight with their properties and the resulting biological efficiency.

Pro-cognitive lighting can simulate natural lighting conditions

Pro-cognitive lighting, much like daylight, contains all colours and lengthways and, in contrast to other standard artificial light sources, an increased share of a stimulating blue and azure component. Moreover, light from these sources is perfectly distributed evenly within the space. As a result, it does not feel unnatural, provides the highest visual comfort and an almost identical biological efficiency of the sun.

In contrast to pro-cognitive lighting, classic fluorescent tubes or standard LED lights are distant from the daylight. They lack balanced spectrum and optimal wavelengths, often making people feel tired and less alert under them. They also have a negative impact on overall health and vitality. Contrarily, according to numerous studies and

research projects, high-quality lighting conditions positively affect productivity, working pleasure, overall mood and relationships within teams.

Within local experiments in the Spectrasol Company, the University Centre for Energy Efficient Buildings of the Czech Technical University and the National Institute of Mental Health have proven the positive effect of pro-cognitive lighting in a school environment. Comparison of pro-cognitive and standard lighting in the form of classic fluorescent tubes and LED lights proved that under pro-cognitive light, students have far better grades and results in psychological tests. Their short-term memory, mental resilience and emotions also improved. On the contrary, overall sickness rate and late arrivals decreased. Cognitive abilities, activities and overall mood also improved when the lighting was installed experimentally in a nursing home and other facilities.

Last but not least, bio-optimised lighting can improve conditions for people working on shifts. Night shifts entail an

enormous and unnatural burden. The World Health Organisation even included them as potential carcinogens. Reduced quality of sleep and chronic sleep deficit, the so-called social jet lag, are frequently responsible for higher error rates, lower concentration and a reduced ability to cope with emotional stress. Exposure through suitable lighting can contribute to improved light hygiene and consequently better management of crisis situations.

Quality lighting is one of the cornerstones when creating a stimulating and comfortable working environment as regards its direct impact on our performance, health and vitality. Thanks to modern technologies, it also constitutes a strong potential for improved activities and results of the defence, security and integrated rescue services.

*Daniel Jesenský and Hynek Medřický,
Spectrasol*



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- Enhances safety
- Increases the effectiveness and quality of lighting



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DJI MATRICE 300 RTK - A DRONE for the future

Drones should be discussed primarily in clear contexts. For example, how to search for people, how to effectively inspect a high-voltage pole, how to perfectly work out a 3D terrain model... There are quite many possible tasks and every expert will surely find his own, an ideal one in his profession. Therefore, we will describe at least the basic possibilities of this new technology.



Why is this a drone for the future?

Matrice 300 comes with the ability to install up to three add-on devices at once. Some of them may even be multifunctional. It does not have to be just different types of cameras but, for example, a gas detector or a 3D laser scanner.

This means that the amount of information the drone collects during a mission is inexhaustible. The user then has quite a lot of work to do with their processing. However, the DJI manufacturer kept that in mind when developing the cameras.

The good news is that additional devices are developed not just by the DJI drone manufacturer but also by other companies. There is a whole range of possible use cases for the drone in practice.

Where has the drone-carrier moved against the previous generation?

Matrice 300 foreshadowed a new era in drone technology. At first glance, it attracts with a large number of sensors. Four of them „look“ in each direction. Besides that, the pilot's preview camera looks ahead. This means that there is a total of twenty-five additional sensors. These sensors along with the latest

visual software help you successfully complete each mission. The drone can see in all directions and signals obstacles up to a distance of 40 m. This makes the pilot's job much easier.

What can such a mission look like?

We can fly in „hands“. But we can also plan a mission. According to the map and points. Or we will teach the drone the desired route. Such teaching takes place by performing individual tasks and writing them into the drone. It might look something like this. We will reach a certain position, there we will „say“ take a photo in this place with ZOOM 15x and, at the same time, a thermal image, then continue to the next point, there turn on video recording... just do the action and the drone will write it down. This mission can then be repeated at any time. You don't have to do any complicated programming at all.

Other parameters of the drone are also interesting.

Compared to the previous generation, this new one is larger with greater load capacity and longer flight time, which is 55 minutes without cargo. The load capacity is 2.7 kg and the total flight weight is a maximum of 9 kg.

This shows that it is not a very small drone. Matrice 300 and the sensors are ready to work in difficult conditions and bad weather as well. The versatility of the drone and its equipment is unrivaled, you can embark on almost any task. Mainly the H20T hybrid camera is a great helper.

Revolutionary, hybrid DJI H20T camera, three cameras, and a laser rangefinder.

Let's start by utilizing the camera. We fly a longer distance, losing track of space. Above all, we misjudge the distances.

We usually fly to some object, here we use the laser. It has a range of up to 1200 m and can help us with a safe and clearly defined distance for inspection or avoidance maneuver.

During the inspection, the cooperation of three cameras in one device is a great advantage. The wide-angle range provides us with an overall overview. By switching to the ZOOM camera, we get the detail instantly. It can be optically magnified up to 23x, digitally even up to 200x. Moreover, the thermal imager adds temperature information. Of course, it is possible to set different color palettes and temperature limits that interest us. The software can significantly speed up inspection and data processing. You can mark the area (with your finger on the controller display) that needs to be photographed in detail. The H20T camera with optical zoom will take care of everything itself. It creates a tiled image that can then be easily viewed.

If this text has motivated you to try out the practical possibilities of drones, it is not a problem. We have drones ready for trial in real tasks. Only practice can validate your fresh ideas.

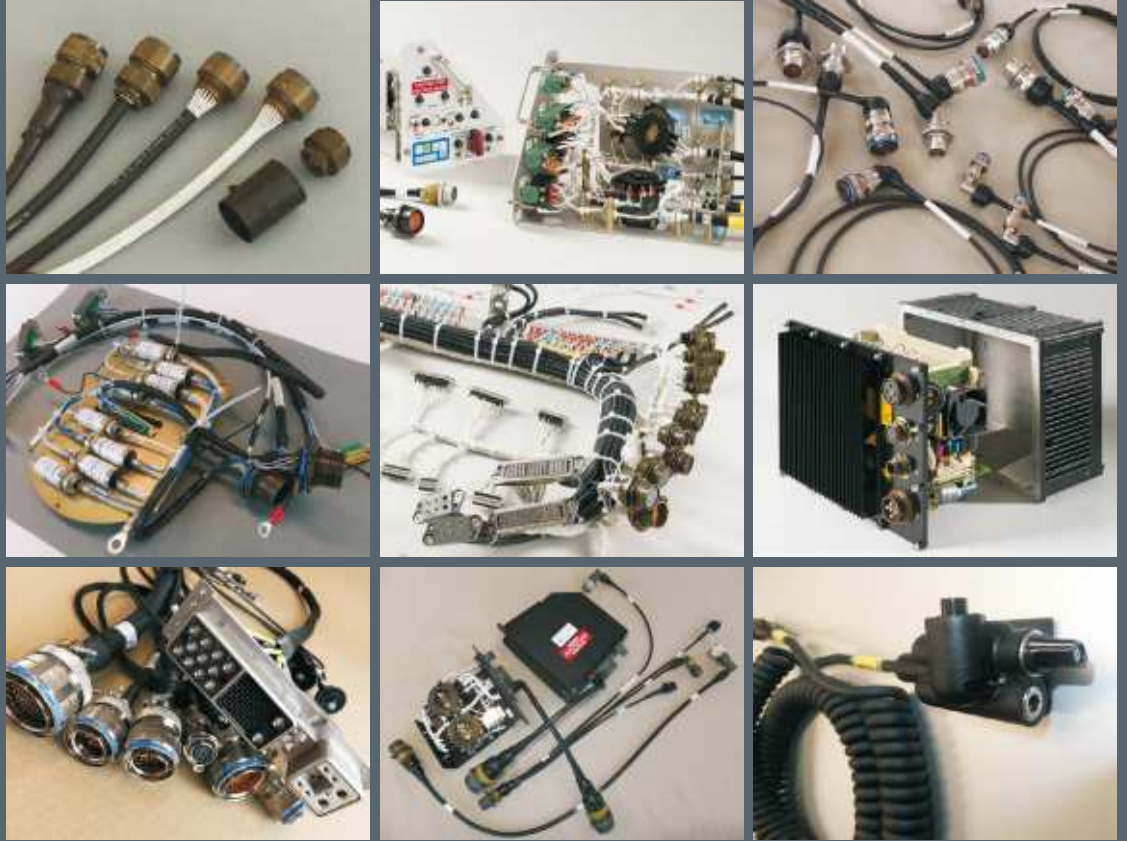
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The armed forces have been using the Tatrás for more than a hundred years

The TATRA TRUCKS company is the second oldest manufacturer of trucks in the world. However, Tatrás are a key part of a transport capacity of the Czech Army and moreover, they are used in many armed forces around the world. These trucks are world-known thanks to the „Tatra concept“: a central load-carrying tube and axles with independently suspended swinging half-axles bolted together into a single unit.

In 1850, the long history of the company began to be written. At that time, the local native Ignác Šustala started his business in the town of Kopřivnice. First, he manufactured carriages and chariots, later he started production of railway wagons. In 1897, the company produced its first passenger car, and a year later, the first motor truck drove out of the gates of the Kopřivnice factory.

After the founding of Czechoslovakia in 1918, the Kopřivnice company began to use the Tatra brand on its vehicles. The TL2 and TL4 trucks used in the armed forces during the First World War were the first to carry the Tatra brand – they were also the first Tatrás used by the Czechoslovak Army.

In the 1920s and 1930s, Tatra gained a reputation for quality not only in the passenger car market. The company also succeeded with its trucks, such as the T 27, T 82, T 85 or T 72 models. These formed, among other things, the backbone of the Czechoslovak Army and they were widely used in other countries as well. After the Second World War, Tatra became the main

manufacturer of heavy trucks for civil and military use in Czechoslovakia. The company supplied tens of thousands of vehicles to countries on almost all continents. The very good reputation of the Tatra brand was spread in dozens of countries by the T 111, T 138, T 148, T 813 or T 815 models. The production of passenger cars was terminated in 1998 and the company has since focused exclusively on trucks and special vehicles for the civilian market and the army.

The Tatra product series

At present, TATRA TRUCKS manufactures four standard model series on three chassis platforms. It also cooperates with the companies of the CZECHOSLOVAK GROUP holding on the development of special military vehicles on a Tatra chassis.

The Tatra Force series, supplied in 4x4 to 10x10 or 16x16 configurations, stands for the key product designed for the use of defence industry. The Tatra Force trucks dispose of air-cooled Tatra engines or liquid-cooled units from foreign manufacturers (e.g. Cummins). The Force model series can

be equipped with cabs in a standard design or an armored design, certified according to NATO standards. The company offers a two-door or four-door variant with a capacity of three, respectively five places.

The Tatra Tactic series consists of medium-heavy trucks designed primarily for military use. The vehicles are manufactured in 4x4 and 6x6 configurations with standard and armored cabs. The first

generation of the Tactic series is equipped with a Renault cab and engines from the same manufacturer. The second generation has Cummins engines, and the transmissions can be either fully automatic or manual. These trucks dispose of a completely new Tatra cabin with a capacity of four people and they have a number of elements in common with the Tatra Force series. Also the Tactic series can be equipped with additional armoring.

The Tatra Terra heavy vehicles series symbolises a continuation of the original Tatra T 815 model, which - in many modifications - has served both in the Czech army and in many foreign armed forces until these days. The basis of the Terra model is formed by an original Tatra chassis with swinging half-axles, and is equipped with a modernized cabin and air-cooled Tatra engines and Tatra gearboxes. Terra vehicles are designed primarily for fire and rescue applications but are also used in the armed forces.

The Tatra Phoenix product series is a key element of the company's civilian production program. However, Tatra Trucks also offers the series in a military version, especially for foreign customers. The Phoenix series uses a combination of the original chassis of the Tatra concept in a 4x4, 6x6 or 8x8 configuration and subassemblies of foreign manufacturers (e.g. DAF, Paccar or ZF and Allison).

Tatra Trucks also supplies its chassis platforms for special military vehicles from other manufacturers. These include the TITUS vehicle produced by Tatra Defense Vehicle and the French company Nexter Systems or the Caesar 8x8 self-propelled howitzer program from the same company. Tatra chassis for military applications are exported, for example, to Brazil, Jordan, Turkey and India, and Tatra military vehicles are manufactured in Saudi Arabia.





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Acoustic detection and shooting localization

At present, acoustic shot detection techniques are used not only for military applications but also for civilian purposes. With the emergence of attacks in schools, campuses, shopping malls or hospitals, there is a demand for automatic fire detection by methods other than camera systems in conjunction with the operator. Detection, localization and classification of firing by means of acoustic detection is therefore increasingly important from the point of view of the civil safety.

Available systems (e.g. Boomerang, QinetiQ, AVISA) are designed mainly for military purposes. Although the ShotSpotter system is also intended for civilian use, its deployment outside the USA is difficult. Based on current market requirements, the Department of Measurement of the Faculty of Electrical Engineering of the Czech Technical University (FEE) has developed an acoustic detector for locating the source of fire usable for both military

and civilian use, eg within the Smart City concept. The developed system detects the acoustic shock caused by the shot using multiple separate units, located inside the area in which the detection takes place, and



a central server. The developed system also includes software consisting of firmware for the ARM microprocessor and an utility program for the supervising server, where the localization of the source and its advanced classification are calculated. It is also possible to estimate the probable weapon type and caliber.

The scientific team from the FEE Measurement Department already has experience with the detection and localization of firing. In cooperation with the University of Defence, they developed a prototype acoustic detector based on a unique detection algorithm, enabling reliable signal identification.

The main user of the developed acoustic detector for locating the source of fire will be primarily the Ministry of Defence of the Czech Republic and Ministry of the Interior of the Czech Republic. The use of a firearm in public is always a risky business, whatever the reasons for the shooting. It is therefore highly appropriate that the security forces and, where appropriate, other

municipal authorities are informed of such an incident immediately, if possible without delay introduced by the human factor.

*prof. Ing. Jan Holub, Ph.D.
 Department of Measurement, Faculty of
 Electrical Engineering CTU in Prague*

Are You Ready to Face New Risks?

A few years ago, it was hard to imagine that cyberattacks might occur on a daily basis, or that the whole world might find itself in lockdown all of a sudden and that all economic activities might be shut down and making it difficult for companies to perform their obligations. Now, we are living this reality and companies have to decide how to deal with these new risks.



The good news is that for a majority of these risks, we already have suitable risk transfer solutions, e.g. in the form of a specialized insurance. However, before using these solutions, the broker must map, in cooperation with the risk manager and the company management, all the risks and carefully assess their impact. The fact is that the processes involved are more and more sophisticated and suitable insurance products are not available in a "ready-made" form. It's up to the broker's skills and capabilities to find the best insurance solution for the client which covers the range of risks the company may face.

Some industries, including defence and safety-oriented industries, have already experienced the downturn which is coming as a consequence of the coronavirus crisis. With the increasing use of IT technologies there is a growth of cyber risks. Restrictions imposed on economic activities have had impact on (in)sufficient liquidity as well as worsening payment ethics of customers. Up to 40 % of assets in companies are represented by accounts receivable; however,

many of these claims are unsecured. There is trade credit insurance solution, which also includes a detailed assessment of the customer's solvency and reliability. In cooperation with RENOMIA a.s., trade credit insurance is also used by some DSIA members, for example Česká zbrojovka and AERO Vodochody AEROSPACE.

Our current international experience shows the increasing pressure shareholders put on the top management to assure they are managing the company in the best possible way and adopt mechanisms to eliminate and mitigate any potential damage. Management puts these key decisions into practice, which pose a certain risk. At risk can be the company itself and its shareholders as well as its managers. This type of risk can be also managed by the specialized insurance product - D&O, which is designed to protect the directors and officers against liability claims.

*Michael Dubský,
 Client Services Director, RENOMIA GROUP*

AIR TEAM

AIR TEAM defence focuses mainly on the modernization of avionics systems and the integration of ISR equipment into aircraft and helicopters, including military material trading. In cooperation with its sister companies AIR TEAM and AIR TEAM service, it participated in the modernization of the aircraft technology of the armed forces of several allied states, and mainly also in the modernization of the technology of the Army of the Czech Republic. The modernized machines included Mil Mi-171, Mi-24 and Mi-8 or SA-330 Puma helicopters and Aero L-159 and L-39 aircrafts. It also provides the Czech and Polish air forces with database updates for PMS and EGPWS systems.

Last year became a milestone in the field of the overall modernizations of avionics systems. The turning point for further development was the upgrade of the Beechcraft 200 Super King Air aircraft. The modernization consisted of a complete replacement of the wiring harnesses and the installation of a next-generation flight deck system G1000 NXi from Garmin, for which our company is the exclusive dealer.

Garmin G1000 NXi flight deck integrates all avionics. The crew has access to the flight data through high-resolution touch screens. The pilot can thus pay more attention to the execution of the flight itself. Besides, the installation of modern avionics systems significantly reduces maintenance costs and saves overall weight. The order also included all-digital radar altimeter Garmin GRA 5500 representing the latest and most accurate technology available, and an air traffic advisory system GTS™ 825 TAS with built-in ADS-B receiver technology. (ADS-B will be mandatory in the European Union after 7 December 2020). The combination of such advanced technology greatly expands and refines the data that the crew in the cockpit can use for their decisions. Intelligent systems enable better flight planning and significantly

increase safety and comfort. All work was carried out „In House“ in a modern full-equipped hangar located at the airport in Kunovice. The installation was performed by trained and certified personnel under the requirements of EASA Part 145.

Following ground and flight tests of the functionality of all systems crowned the efforts of professional teamwork. The owner underwent user training and then flew with a modernized aircraft to his home base.



TENEO

TENEO develops and manufactures connectors, components and cable harnesses with high mechanical strength and reliability for use in severe operating and climatic conditions. Our products are used mainly in the mining, transportation, military technology and aerospace industry. We are also manufacturers and suppliers of contact systems, special parts for electrical applications, precision machined parts,

including the production and supply of contact systems according to individual customer's technical requirements. We offer development, testing and production of connectors, cable harnesses and complete units starting from prototypes to mass production. We design and manufacture prototypes, carry out testing and optimizing the supplied components. We cooperate with partners from more than 34 countries.

Our great achievement of recent times is a newly developed line of connectors TNR. These are high performance connectors designed especially for power and mining equipment. The connectors are designed for very extreme conditions, environmental rated IP68. They are designed for continuous voltage rating 5000 Volts and maximum current load 1140 Amps, and even peak 1300 Amps.



Preparations for the IDET, PYROS & ISET 2021 fairs have just begun

The importance of the defence and security capacities of the state always grows in difficult times. That is why it is of utmost importance to continue modernizing the armed forces and investing in high-quality equipment. A major show of innovations in the defence and security industry in the region of Central Europe is the IDET trade fair held in Brno; its 16th season will take place from 9 to 11 June 2021. The PYROS and ISET trade fairs will take place concurrently. Once again, all components of the Integrated Rescue System will be presented.



defence and security technology, which manufacturers present to potential customers at professional international expo events. Within NATO countries, these prestigious events have long included the IDET trade fair, which also builds on the strength of Czech companies operating in the defence and security industry. Next year, experts from many countries, who have decision-making powers concerning acquisitions of military and security technology, will look at their offer at the Brno Exhibition Centre and compare it with foreign competitors. One of the main topics of the upcoming season will be the modernization of the Armed Forces of the Czech Republic.

The fair will once again feature the traditional Golden IDET competition. The prizes for the best exhibits will be handed out by a commission composed of independent experts. During the fair, conferences and seminars focusing on current industry topics will traditionally be held. A Security Innovation Zone will be newly launched in 2021 to support start-ups and security innovations. The IDET trade fair is also an important platform for the development of international

Innovation for better security

The COVID-19 pandemic has reaffirmed to us that we live in a very uncertain world, where we need to be prepared for all sorts of challenges. The increasingly complicated security situation, the expected increase

in tensions in crisis regions or other risks associated with international terrorism can only be faced by increasing the capacities of armed forces. Expenditure on defence and security will therefore continue to grow, and so will the rapid development of



cooperation. The Ministry of Defence of the Czech Republic and the Armed Forces of the Czech Republic as well as the Association of the Defence and Security Industry of the Czech Republic are working closely together on the preparation of the event and the professional supporting programme. Representatives of NATO and the European Defence Agency and members of several tens of official foreign delegations will traditionally be present among trade visitors from abroad. Also in 2021, the participation of representatives of armed forces and government officials from countries all around the world is expected. IDET is also supported by the heading representatives of the Czech Republic. Patronage was granted by the President of the Czech Republic, the Prime Minister of the Czech Republic, the Chairman of the Chamber of Deputies of the Parliament of the Czech Republic, the Minister of Defence, the Minister of the Interior, the Minister of Foreign Affairs and the Minister of Industry and Trade.

The shape of the upcoming IDET, PYROS & ISET fairs was also discussed with the Chief of the General Staff of the Czech Armed Forces, the Police President, the General Director of the Fire Rescue Service, the General Director of the Prison Service, the General Director of the Customs Administration and the Chairman of the Administration of State Material Reserves.

Integrated Rescue System parade

The coronavirus pandemic has shown the importance of a functioning and well-coordinated Integrated Rescue System in emergency situations. In addition to doctors and paramedics, each state relies primarily on members of armed and security forces to fight the disease. These people need to avail themselves of state-of-the-art equipment, which will make their work easier and increase their safety in the event of additional emergency situations. This particular range of equipment will be available at the PYROS International Fire Fighting Equipment and Services Fair and the ISET International Security Technology and Services Fair, which

will take place concurrently with IDET. Essential components of the Integrated Rescue System, which often have common suppliers, will be presented in one place. This brings advantage to exhibitors because they can effectively reach various target groups. The system's individual components often use similar types of equipment, such as guns, ammunition, optical instruments, uniforms or means of protection. The combination of IDET, PYROS & ISET fairs therefore offers companies a unique opportunity to succeed with one product with several different security forces. In addition to representatives of units directly supervised by the Ministries of Defence and Interior, the fair will also be attended by municipal police officers, volunteer firefighters and professionals from security agencies.

All components of the Integrated Rescue System will be involved in the supporting programme again. As part of the IDET ARENA 2021, technology used by the Armed Forces of the Czech Republic, firefighters, police officers and rescuers will be demonstrated at an off-road polygon. Professionals can look forward to attractive dynamic demonstrations of combat equipment and simulated interventions. Units of the Prison Service and the Customs Administration will also be presented. The IDET ARENA programme will continue together with the PYROS and ISET trade fairs on Saturday 12 June 2021, when the gates of IDET will be already closed and the expo grounds will be opened to the public for the Safety Day – Rescuers to Children event.

The jubilee 15th IDET was the largest in history

Last season of IDET took place in 2019 with the participation of 423 exhibiting compa-



nies from 28 countries, with the share of foreign companies reaching 70 percent. The displays were visited by 26,389 trade visitors from 40 countries and 149 journalists from 9 countries were accredited for the fair. Trade visitors from abroad were mainly professionals from Slovakia, Poland, Germany, Austria and Sweden. At the invitation of the Minister of Defence of the Czech Republic and the Chief of the General Staff of the Czech Armed Forces, representatives of NATO and the European Defence Agency as well as official delegations and representatives of foreign armed forces from 20 countries took part in the IDET trade fair. Last year's participants highly appreciated the expo's professional level and quality as well as the interest from visitors.

Best terms for applications until mid-December

The 16th IDET International Defence and Security Technologies Fair will take place from 9 to 11 June 2021 and the regular deadline for applications for exhibitors is 10 December.

For up-to-date information on the preparations of the fair, please visit www.idet.eu.



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