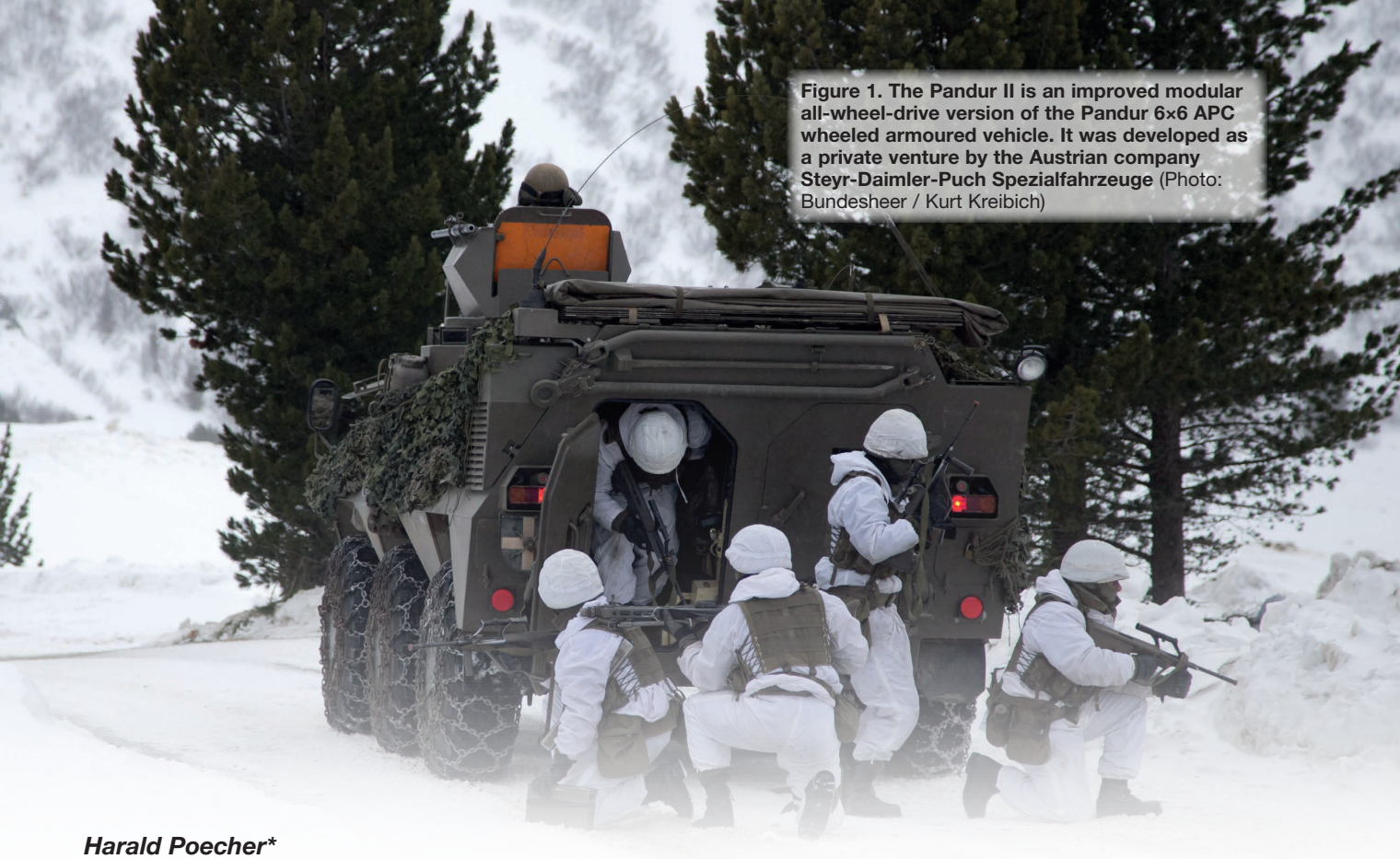

Figure 1. The Pandur II is an improved modular all-wheel-drive version of the Pandur 6×6 APC wheeled armoured vehicle. It was developed as a private venture by the Austrian company Steyr-Daimler-Puch Spezialfahrzeuge (Photo: Bundesheer / Kurt Kreibich)

Harald Poecher*

Current Trends in the Austrian Armament Industry

Although a small branch of the whole industry, due to excellent products it can survive on the market

After the Second World War (in 1955), Austria again became an independent state with its own armed forces. However, the Austrian armed forces have constantly suffered from a budget shortage since the beginning of their foundation. After regaining independence, the Austrian armed forces received different armament goods and weapon systems as a gift from the former occupying powers. Thus, the need for an investment into new weapon systems always remained small.

After the regaining of independence, the defence industry in Austria started to develop again based on previously existing companies. From the beginning, the Austrian armament industry had to struggle with the small domestic sales market due to the low defence budget of the Austrian

ÖSSZEFOGLALÁS: Az Osztrák Köztársaság hadiipara a virágkorának tekinthető 1980-as években több mint 15 000 alkalmazottat foglalkoztatott a fegyvergyártásban, ami mára körülbelül 1500 főre csökkent. Ennek okait a belföldi kereslet hiányában, és a kiterjedt exportkorlátozások miatt zsugorodó piacban találhatjuk meg. Összességében a piaci réseket kihasználó, valamint a kettős felhasználású termékekkel együtt a teljes osztrák védelmi ipar gyártmányainak mintegy 90%-át exportálják, amely 2,5 milliárd eurós árbevételt jelent. A teljes biztonsági és védelmi iparág napjainkban összesen 32 000 főt foglalkoztat közvetlenül vagy közvetve.

KULCSSZAVAK: hadiipar Ausztriában, védelmi ipar, fegyverek és lőszerek, kettős hasznosítású termékek, katonai járművek

ABSTRACT: The armament industry of the Republic of Austria from 1955 to the present day has been a small part of the country's industry, which employed more than 15,000 people in the production of weapons in its heyday in the 1980s, but today has only about 1500 employees due to a shrinking process resulting from the lack of domestic demand and extensive export restrictions. Overall, including niche products and dual-use products, around 90 percent of the products of the defence industry are exported, generating sales of 2.5 billion euros. In total, 32,000 people are employed directly or indirectly in the Austrian security and defence sector.

KEY WORDS: armament industry in Austria, defence industry, weapons and ammunition, dual-use products, vehicles for military purpose

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armed forces and restrictive export regulations. Therefore, this branch of industry has always remained a small part of the overall economy compared to economically comparable countries. At its peak in the early 1980s, the Austrian defence industry employed around 15,000 people in the narrower sense. [1] Since the beginning of the 1990s, the Austrian defence industry has been in a constant process of shrinkage, so that at present this branch of industry is hardly or not at all noticeable in its core business of producing weapons and ammunition. All of the more than 100 Austrian companies in the security and defence sector, which include only a handful of manufacturers of weapons and ammunition (and the vast majority of which produce dual-use goods), generate annual sales of around EUR 2.5 billion with around 32,000 direct and indirect employees. With an export share of over 90%, the sector is at the forefront of the otherwise strong Austrian export economy. [2]

Most of the enterprises of the Austrian armament industry are organized in the "Austrian Security & Defence Industry Group – ASW", which is a sub-organisation of the Austrian Federal Economic Chamber (WKO).

The basis for further explanations is a catalogue of the Austrian Chamber of Commerce on Defence and Security [3], which, in addition to the producers of armaments in the narrower sense, also includes companies that manufacture so-called dual-use products. In addition, Internet research and interviews with selected companies were also carried out by the author.

Weapons and ammunition
[3; p. 32, 59, 60, 65, 101, 105, 124, 138.]

Around eight companies produce weapons and ammunition in Austria. The internationally most successful company is Glock, which manufactures pistols and personal equipment in Deutsch Wagram. The export share is around 80%. Glock pistols are in use by army and police units around the world and the Glock product portfolio is characterized by the highest quality standards in manufacturing technology and flexibility in adapting to customer needs. A particularly important market for the company is the United States of America.

Another well-known company that manufactures weapons is Steyr Mannlicher in Steyr. The weapons factory in Steyr is one of the most important and innovative companies in this industry in Europe and produces pistols, sniper rifles, hunting rifles and assault rifles. The products of Steyr Mannlicher are not only valued in Europe, but also in Asia, Australia and Malaysia. The modern automatic military rifle has been introduced and is also manufactured there under license. With an export share of over 95%, Steyr Mannlicher is a global player in this segment. The military, police and other state security organizations around the world trust in the quality, precision and reliability of the products. *(Figure 2.)*

A company which must be included in this group is the company Voere, a medium-sized company from Kufstein in the Tyrole. For more than 60 years, Voere has been one of the most innovative companies in the fields of precision and weapons technology. The precision rifles developed and produced by the company enjoy a worldwide reputation. The precision rifles from Voere include the X3 and M2. Due to the modular design, practically all assemblies of the rifles can be modified user-specifically.

In the field of weapon manufacturers, Austria has the traditional company Hirtenberger Defence Systems, headquartered in Hirtenberg, which manufactures grenade launchers. *(Figure 8.)* In 2019, 100 percent of Hirtenberger was acquired by HDT Védelmi Ipari Kft. Company. The acquisition of Hirtenberger Defence was a vital cornerstone of the Hungarian Government's strategy to develop and increase size of the Hungarian Defence Sector. HDT Védelmi Ipari Kft. Company maintained Hirtenberger Defence Group as it was and took full responsibility for all commercial operations and commitments to employees, customers, partners and suppliers. Hirtenberger Defence continues to operate from all its locations and carry the internationally well-known brand.

Ammunition is produced by Rheinmetall Munition Arges in Schwanenstadt, which produces hand grenades and above all 40 mm ammunition, and RUAG Ammotec Austria in Wr. Neudorf. Another company in the field of production of ammunition is Bowas-Induplan Chemie in Salzburg, which is an international, innovative and reliable plant construction company that plans, assembles and commissions plants for the explosives industry and associated auxiliary systems

Figure 2. Austria Arms is an exceptional arms dealer in Austria. The company is located in close proximity to GLOCK, which is one of the most popular small arm brands [5]

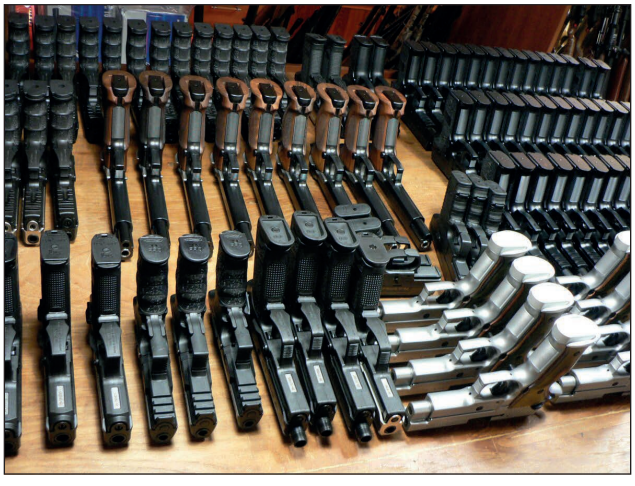


Figure 3. Rheinmetall is supplying the South African military with new 40mm medium-velocity ammunition, underscoring its role as the world's leading one-stop-shop for 40 mm ammunition systems [6]

worldwide. The company offers contemporary solutions for entire plant complexes and special sub-plants. Bowas-Induplan Chemie also builds systems for the dismantling of stored ammunition and their environmentally friendly disposal as well as systems for cleaning soil contaminated by explosives. *(Figure 3.)*

Armoured tracked and wheeled fighting vehicles [3; p. 57.]

Armoured tracked and wheeled vehicles are manufactured by Steyr-Daimler-Puch in Vienna, which is part of the General Dynamics Group Land Systems Europe. The most important products include the "Pandur" *(Figure 1., Figure 5)* wheeled armoured vehicle and the "Ulan" *(Figure 6.)* armoured infantry fighting vehicle. One of the main customers is the Austrian Armed Forces, which have had good business connections with this company for decades. In the past, the company supplied the army with the "Kürassier" tank destroyer and the "Greif" armoured recovery vehicle.

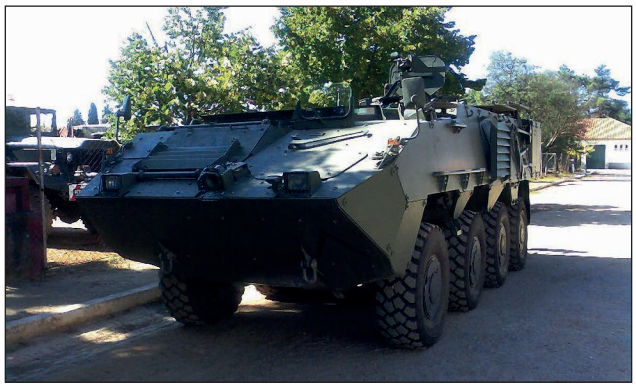


Figure 5. The Pandur 8×8 APC is manufactured in Austria while export versions are also built in the Czech Republic and licensed versions in Barreiro, Portugal (Photo by Kurt Kreibich)

Wheeled vehicles for military purpose [3; p. 47, 56, 100, 104.]

Rheinmetall MAN Military Vehicles Austria offers a wide range of highly mobile and protected truck systems with which soldiers can carry out their operations safely. Derived from the civil series and consistently further developed for military operations, the trucks of Rheinmetall are not only extremely economical, but also meet military requirements such as climatic conditions, off-road mobility and reliability. In threatening situations, the highly protected cabins from Rheinmetall protect the crew from shelling and mines. *(Figure 4.)*

EMPL in Kaltenbach is the leading manufacturer of tailor-made truck bodies for military use. The vehicles, which have proven themselves for decades both in the desert and in the frosty north, are characterized by durability, optimal corrosion protection and their special adaptation to the respective application requirements. The safety of the emergency services has the highest priority. EMPL continuously invests in state-of-the-art production facilities and R & D and tests the bodies under the toughest conditions before delivery. The product range includes heavy recovery vehicles, troop transporters, ambulances, workshop structures, shelters, hook loading systems and fire engines.

Franz Achleitner in Wörgl produces protected logistics, security and special vehicles for customers all over the world. The innovative products from Achleitner include the protected SURVIVOR family with high off-road capability.

Rosenbauer International in Leonding is the world's leading manufacturer of firefighting technology for defensive fire and disaster control. The company develops and produces vehicles, extinguishing technology, equipment and telematics solutions for professional, company, plant and voluntary fire brigades as well as systems for preventive fire protection. All important standards are covered with products from European, American and Asian manufacturers. The group is active in over 100 countries with its service and sales network.

Figure 4. Rheinmetall MAN Military Vehicles (RMMV) displays an HX 81 truck with an integrated multipurpose recovery system. The systems of the HX family made by RMMV among the most cost-effective in their class (Photo: qiaqatar.com)

Engineer systems [3; p. 114, 139.]

Waagner-Biro Bridge Systems in Vienna is one of the top suppliers of modular bridge systems, which are particularly suitable for military use, since a load-bearing capacity of up to military load class (MLC) 150 and a large number of non-military loads are guaranteed. The Waagner-Biro panel bridge represents a robust modular bridge system consisting of prefabricated steel components with interchangeable standard panels that can be easily adapted to different spans (over 80 m possible), deck widths (single or double lane) and traffic loads. It combines the advantages of the original Bailey system with modern materials, simple connections, better manufacturing details, light individual components and high resilience through high-strength steel and an improved static design.

Since the mid-1980s, Schiebel Electronic Devices in Vienna has concentrated on the development and production of high-tech mine detectors, which made the company the world market leader, not least thanks to a major order from the US Army. [4]

The aerospace and space industry [3; p. 41, 106, 114, 129, 131.]

The most important company that manufactures aircraft is Diamond Aircraft Industries in Wiener Neustadt. The company is an international, globally operating manufacturer of plastic aircraft, with representation in Europe, North America, Asia and Australia. At two production sites, one in Wiener Neustadt, where the headquarters and the development department are based, and one in London, Ontario Canada, innovative aircraft solutions are produced at the highest level and quality for flight schools and private customers. The production range includes powered gliders, single and twin-engine piston aircraft and is currently developing single-engine turbine-powered aircraft. The company's reference customers include the French and Indian Air Forces.

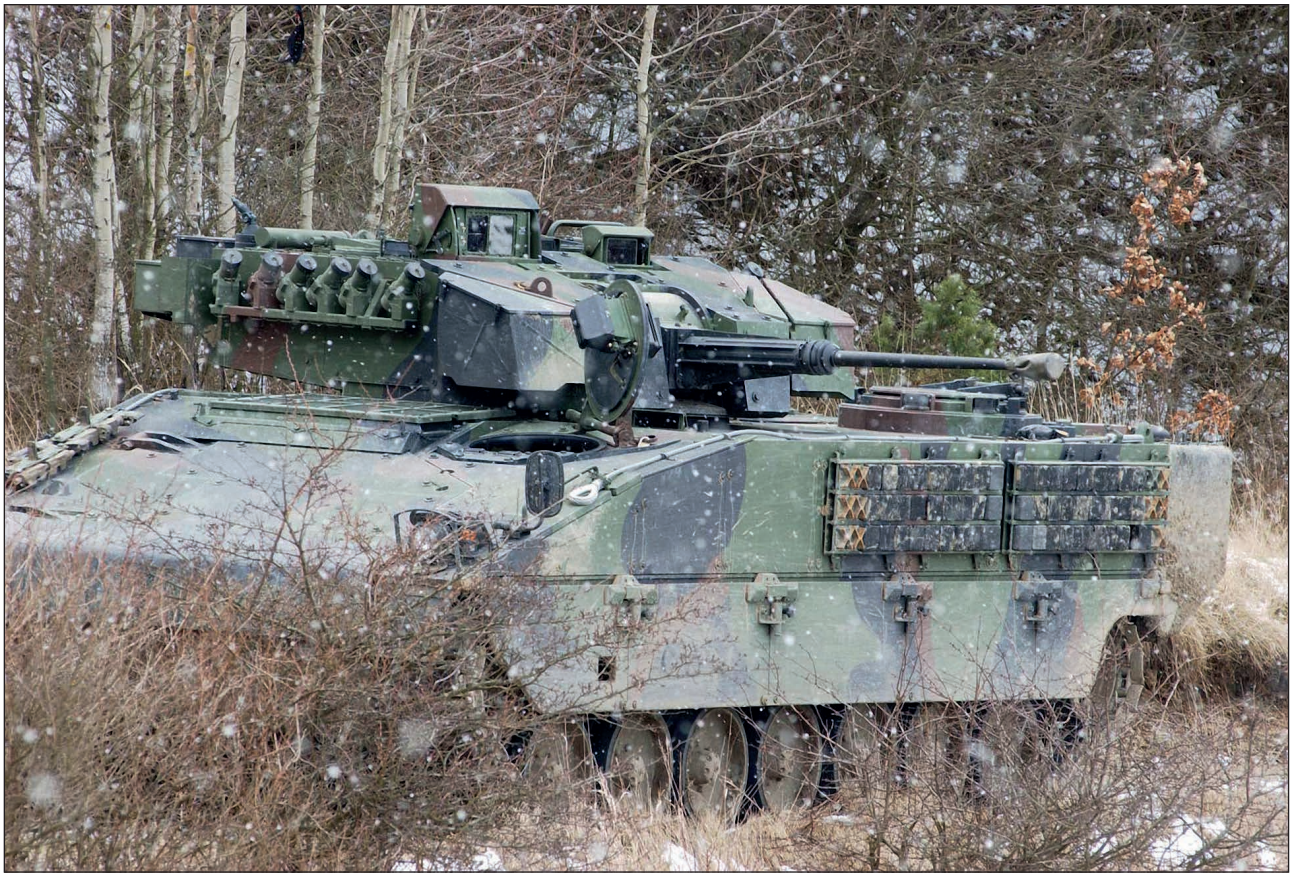
In the course of the development and production of the high-tech helicopter CAMCOPTER®S-100, Schiebel Electronic Devices in Vienna was able to extend its position as world market leader to the field of unmanned helicopters. Since 2010, Schiebel has also been offering the Composites Technology product group.

Trixy Aviation Products in Dornbirn develops and produces gyroplanes that are specialized for civil and professional applications.

RUAG Space in Vienna equips satellites worldwide with electronics, mechanics and thermal insulation and has an export quota of around 100 percent.

TEST-FUCHS GMBH in Gross-Siegharts is one of the world's leading companies in the field of test systems for the aerospace industry, as well as the development of ground support equipment and aircraft ground equipment for civil and military aviation. Other pillars of the innovative family business are the manufacture and maintenance of flying components and the production of cryogenic valves.

Figure 6. The infantry fighting vehicle SPz "Ulan" is the combat vehicle of the Austrian armored infantry. He supports the soldiers with his armor protection, his mobility and his firepower. Thanks to its powerful engine, the "Ulan" is able to follow the "Leopard" 2A4 main battle tank on any terrain (Photo: Austrian Armed Forces)



Telecommunications
[3; p. 57, 74, 117.]

The most important company which produces communication equipment for military use in Austria is Kapsch BusinessCom in Vienna. With its extensive know-how in dealing with large amounts of data and security as well as a large number of successful use cases in numerous industries, Kapsch is the ideal companion for digital transformation. The extensive portfolio in Austria, Romania and the DACH region includes technology solutions for intelligent and above all secure ICT infrastructure, smart building, media and security technology as well as outsourcing services.

Frequentis Defence in Vienna offers individually tailored solutions for network-enabled operations and addresses military air traffic management, command and control, tactical networks, border and homeland security, as well as surveillance and reconnaissance.

Scotty Group in Vienna is a solution provider for communication "over the horizon" using satellites. The solutions are specially tailored to customer needs to provide the best communications worldwide – AERO, Maritime (ocean-going), Land Mobile (vehicle-bound) as well as for military applications, disaster relief, the oil and gas industry and telemedicine applications. The portfolio includes live transmission of data, video and audio, "memory transmission" of video recordings, PC and Internet and much more. The systems are hardened and can be operated with a wide variety of accessories.

Optical products and opto-electronics
[3; p. 73, 92, 102.]

Probably the best-known Austrian company in this branch is Swarovski Optik in Absam. Founded in 1905, the company manufactures binoculars, high-precision rifle scopes and laser range finders, as well as night vision devices.

Rohde & Schwarz Austria as a globally active, independent technology group develops, manufactures and sells a wide range of electronic capital goods for industry, infrastructure operators and sovereign customers.

The Vienna-based company Photonic Optical Devices - a company of the Wild group of companies - produces night vision devices, laser rangefinders, sights for artillery pieces and grenade launchers as well as telescopic sights for rifles.

Another company, Kahles in Guntramsdorf, makes binoculars and telescopic sights. Founded in 1898, KAHLES is the oldest still existing rifle scope manufacturer in the world.

Information Technology (IT)
[3; p. 19, 27, 48, 72.]

Compared to other European countries of similar size, population and economic importance, Austria has a modest information technology industry. Nevertheless, there are some companies that develop and produce IT hardware and software for special military applications.

For military-specific applications, ESL Advanced Information Technology in Vienna develops solutions for C4ISR (Command, Control, Communication, Intelligence, Surveillance, Reconnaissance) systems and Rubicon is an international software company based in Vienna. engineering services and research and development.

AIT Austrian Institute of Technology in Vienna has many years of know-how in the field of security research for the protection of critical infrastructures or for command and control systems and for use in crisis and disaster management.

AVL List in Graz is the world's largest independent company for the development, simulation and testing of drive systems (hybrid, combustion engine, transmission, electric motor, battery, software) for cars, trucks, large engines and special applications.

JOANNEUM Research – Digital in Graz is a reliable partner for digital innovation and transformation and develops practical high-tech solutions for security and safety.

Medical technology and equipment for humanitarian aid
[3; p. 17, 20, 42, 43.]

The requirements for field medical equipment for the armed forces are based on modern military medical specifications, which essentially derive their bases from disaster medicine. Vendors of such devices are the major medical device manufacturers, who also maintain an armament division to secure profits in this market segment. The most important companies that offer services in this segment are:

Air Ambulance Technology in Ranshofen (Air Ambulance Technology produces customized "quickly exchangeable" rescue equipment – EMS, MEDEVAC, VIP – and "Special Mission" interior equipment for helicopters and fixed-wing aircraft), AMST-Systemtechnik in Ranshofen (world market leader in the highly specialized areas of aviation medicine and training of flying personnel).

Dlouhy in Tulln (the family company has specialized in solutions for rescue services for several decades) and DiproMed GmbH in Vösendorf, which manufactures medical and forensic rapid tests and sells them itself. These tests are used internationally under the brands DRUG-LAB®, DiproMed® andhemdect®. DRUGLAB® is a mobile laboratory solution for detecting drugs – used by the police, military and customs all over the world. The brands DiproMed® andhemdect® stand for reliable tests in the area of point of care diagnostics.

Clothing and protective equipment
[3; p. 41, 53, 62, 76, 109, 133.]

The development of clothing and men's equipment is part of armed forces planning and includes basic planning and testing through to the creation of so-called technical specifications as the basis for procurement. The production itself is carried out by companies that mostly have the textiles manufactured in low-wage countries in the Far East. Despite the unfavourable market conditions, there are a few companies in Austria that deal with the production, but also with the complete in-house development of clothing and men's equipment

J. Blaschke Wehrtechnik in Vienna offers a wide range of camouflage systems, NBC protective clothing and combat diving equipment. Goldeck Textil GmbH. Carinthia in Seeboden specializes in the production of high-quality cold protection systems and sleeping bags. Kohlbrat & Bunz in Radstadt deals with the development and

Figure 7. ***a)*** **The unique Hirtenberger HDS 60 mm System contains a state-of-the art commando mortar and a complete ammunition family for every operational requirement. The weapon and the ammunition were designed to enable the modern soldier to use effective 60 mm mortar fire support from within the infantry group. 7.** ***b)*** **The system is light to carry, easy to handle but still effective and accurate to deploy. The M6 C-640 Mk1, is the enhanced, combat proven version of the M6C 640 T which has been supplied worldwide it combines mobility and effectiveness in one fire support weapon system. 8.** ***c)*** **At the end of 2021, the Hungarian Armed Forces Command announced a procurement effort for M12 120 mm mortar systems. These weapon systems will be supplied by Hirtenberger Defence and will include not only the mortars but also other system components** (Photos: https://hds.hirtenberger.com/media/)

manufacture of products for personal rescue. The Sattler Group in Gössendorf is a globally active family company based in Austria. The Sattler Group is the specialist for awnings, tarpaulins and technical textiles, as well as for innovative solutions in the field of environmental technology and textile architecture.

Ulbrichts Protection in Schwanenstadt manufactures ballistic helmets made of titanium and titanium-aramid (hybrid). Customers are police units and the military worldwide. Ulbricht's widow is one of the pioneers in the field of ballistic head protection. It regularly sets new technical standards through innovation in protection, comfort and design. The helmet series "Zenturio", "Hoplit" and "Optio" are trend-setting due to their level of protection. The titanium helmets offer the best protection against bullets, as they reliably stop projectiles and prevent deadly trauma to the helmet wearer.

fireKRAFT Austria in Pasching produces, sells and develops battle-tested, powerful and safe equipment for regular forces as well as for special forces. The spectrum includes solutions in the field of air, land and maritime special forces.

Training and simulation [3; p. 20, 112, 120.]

AMST-Systemtechnik in Ranshofen is the global market leader in the highly specialised fields of aero- space medicine and aircrew training. With its extensive portfolio of products and services, the company contributes significantly to the safety and performance of aircraft and their crews.

SCE System Engineering in Salzburg stands for Simulation: new development, realisation and upgrade of system solutions in the aviation sector and industrial plants.

Simgun in Götzis is a company which produces duel simulators to offer trainees a realistic shooting experience. SIMGUN is highly precise, efficient, upgradable, uncomplicated to use and cost- efficient. SIMGUN offers immediate, clear hit recognition with the highest precision. SIMGUN is a one-stop solution for effective, realistic training, particularly suitable for police units and military special units.

Instead of a summary

The importance of a national armament industry depends essentially on the national security and defence policy of a country. If a state pursues an active security and defence policy, the armament industry is also perceived as an active part of the entire industry and can hope for good business.

With regard to the armament industry of Austria, it is to be feared, since Austria is increasingly perceived by foreign countries as a free rider of the international, and especially the European security architecture, that this branch of industry will remain small although it has a high innovative power and would be able to produce high-quality weapons for the world market, as Glock shows with his pistol or Schiebel with his camcopter.

References

[1] Pöcher Harald. Geld, Geld und noch einmal Geld … Schriften zur Geschichte des Österreichischen Bundesheeres Herausgegeben vom Generalstab des Bundesministeriums für Landesverteidigung und der Militärgeschichtlichen Forschungsabteilung des Heeresgeschichtlichen Museums (Wien), Band 9, Wien 2006, Seite 87-95.;
[2] Wirtschaftskammern Österreichs http://www.wkoarge.at/en/asw/company-directory/, (retrieved 2022.5.3.);
[3] Austrian Federal Economic Chamber in cooperation with the Austrian Federal Ministry for Transport, Innovation and Technology: Fresh View on Security and Defence NO 163 https://www.wko.at/service/aussenwirtschaft/fresh-view-2018-163-security-and-defence.pdf; (retrieved 2022.5.3.);
[4] https://de.wikipedia.org/wiki/Schiebel_Elektronische_Geräte, retrieved (retrieved 2022.5.20.);
[5] Source: https\\www.austriaarms.com/impressum.php (retrieved 20 May 2022);
[6] Source: https://fragoutmag.com/rheinmetall-new-40mm-medium-velocity-ammunition-sadf/ (retrieved 20 May 2022).