

MIL1AG

THE MILITARY MAGAZINE

THE NEW AKM
FROM POLAND
HELLPUP

MODULAR
ASSAULT RIFLE
GROT

SIX-SHOT
GRENADE LAUNCHER
RGP-40

25TH
INTERNATIONAL
DEFENSE INDUSTRY
EXHIBITION
MSPO

DRAGON TOOTH
FROM CHINA

TEST:
FAB DEFENSE **PODIUM**

TEST:
HUSAR **CUBBY ADMIN**
+POUCH

TEST:
WISPORT **ZIPPERFOX 40**
BACKPACK

ISSN 2544-917





Targi Kielce
exhibition & congress centre



ufi
Member

■ ■ ■
The Honorary Auspices
of the Republic of Poland President
Mr Andrzej Duda on Poland's
100th anniversary of independence

26. International Defence Industry Exhibition

4-7.09.2018
Kielce - Poland

www.mspo.pl

Strategic Partner:



MILMAG

THE MILITARY MAGAZINE

Issue 1

Editor's note

Dear Readers

We are proud to present You with the first issue of the MILMAG Military Magazine. It's an internet-published periodical concerning anything related to sports shooting and firearms. You will be able to find a lot of information about weapons (both military and civilian variants), tactical and outdoor gear, personal safety or defense industry analysis. We are quite opened to other subjects as well. Only time and reader's responses will limit our field of interest.

As usual, the first issue is, let's say, experimental. We mixed a lot of different topics, ranging from very technical text concerning firearms to short articles dealing with personal safety. Due to our location, there will be a different outlook on some things we are describing. We and You, the reader, might live in different countries, even on other continents. If You are finding the view from another place interesting, don't hesitate to let us know. Also, don't hesitate if You have some criticism or advice for us. We are present on social media and would very much like to hear from You.

This issue is also experimental for other reason. To make the magazine feel more alive, a decision was made to gradually uncover some articles after the initial publication date. Initially, about 70% of the content is visible, with the rest coming over the course of next week or so. Will this always happen? We don't know as this depends if Readers like it. Let Us know what You think.

Our email address is milmag@milmag.pl and we will happily read all Your comments. We would also like to encourage those of You who are considering getting actively involved in the creation of such a magazine. We are always happy to entertain new ideas and publish new authors.

Remigusz Wilk
Editor-in-Chief

Editor-in-chief

Remigusz Wilk
rw@milmag.pl
tel. +48 536 249 703

Editing

Marta Błaszowska
Rafał Janicki
Jakub Link-Lenczowski
Paweł Ścibiorek
milmag@milmag.pl

Editor assistant

Joachim Rażny
jbr@milmag.pl

Marketing

Jakub Link Lenczowski
+ 48 662 936 595
marketing@milmag.pl

Publisher

MILMAG Sp. z o.o.
Ul. Sikorskiego 22/2
32-400 Myślenice
NIP: PL6812066653
KRS: 0000674230

Design

Karol Batko
GNARLY

2 EDITORIAL

6 MILITARY

- 6 **RGP-40 Revolver Grenade Launcher**
A new multi-shot weapon for Polish Armed Forces



22 FIREARMS

- 22 **Hellpup from Radom**
42 **FAB Defense Podium**
54 **Weapon cleaning for dummies**



62 OUTDOOR

- 62 **HUSAR Cubby Admin Pouch plus**
70 **ZipperFox 40 by Wisport**
80 **UF Pro Delta AcE Sweater**
86 **Dragon Tooth**
Tactical garments from China
100 **Self defense**
Part 1
106 **Equipment protection in wet conditions**



OUR TEAM



Remigiusz Wilk



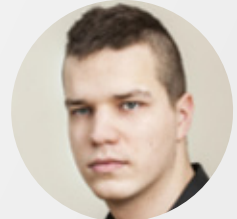
Jakub Link-Lenczowski



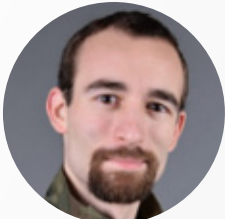
Rafał Janicki



Paweł Ścibiorek



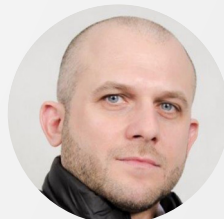
Joachim Rażny



Karol Batko



Dariusz Borkowski



Bogusław Dawiec



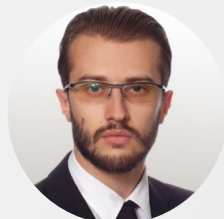
Grzegorz Franczyk



Marcin Gałązka



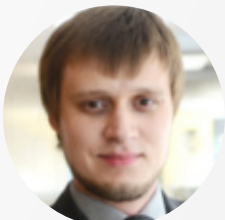
Miłosz Grabski



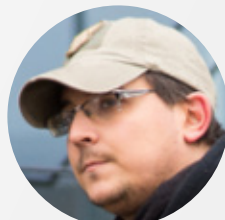
Axel Jach



Krzysztof Kluza



Adam Koper



Jarosław Lis



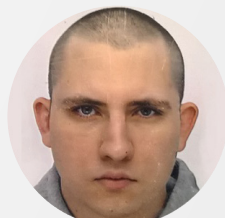
Celina Pawlik



Jacek Reiter



Bartosz Szymonik



Łukasz Thum



Piotr Turocha



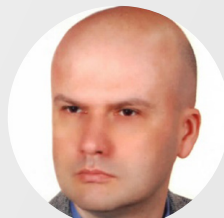
Artur Wagner



Rafał Walczowski



Krzysztof Winiecki



Marcin Wrześniowski

RGP-40 Revolver Grenade Launcher

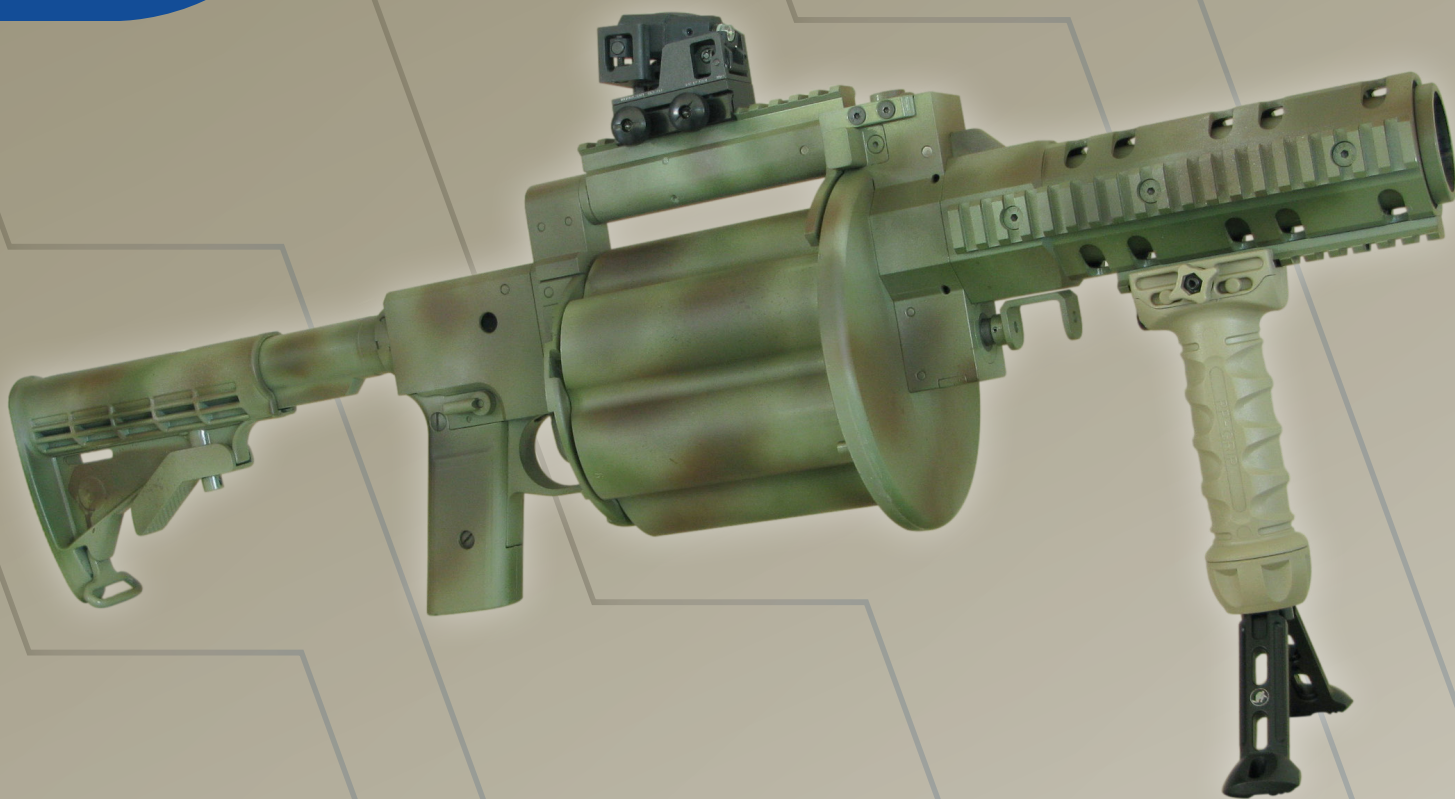


A close-up photograph of an RGP-40 multi-shot grenade launcher. The weapon is black and mounted on a tripod. It features a large cylindrical magazine on the left side with the number '1' and '2' visible. The main body of the launcher is on the right, with a textured grip and a trigger. The background is a field of green grass.

A new multi-shot weapon for Polish Armed Forces

On the 11 February 2016, a two-year contract for procurement of 200 RGP-40 grenade launchers has been signed by Poland's Ministry of National Defense Armament Inspectorate. This confirmed an introduction of new type of weapon into the Polish Armed Forces. Never before Polish Army soldiers were equipped with a multi-shot, single crew grenade launcher. The RGP-40 has been developed and produced by Zakłady Mechaniczne Tarnów.





▲ Model of repeating RGP-40 launcher was heavy, clunky and not very pretty. Luckily, prototyping made sure that it evolved significantly

From the middle of the 2000s, Land Forces were seeking an individual weapon, capable of providing intensive fire-support with high-explosive ammunition and compatible with other types of projectiles including smoke and illumination among other. This weapon was supposed to have an effective range similar to a service rifle and, at a later time, to the marksman rifle. Another premise was the lowest possible mass and size, so it could be easily transported and used by a single soldier while carrying extra ammunition.

Pallad S and Pallad M

Previously in 1980s Warsaw-based Institute of Precision Mechanics (IMP, Instytut Mechaniki Precyzyjnej) developed the semi-automatic Hel (Pallad S) grenade launcher. The weapon massed 4,4 kg and were using low-velocity ammunition fed by a tubular over-the-top magazine. At the same time, the GA-1000 (Pallad M) automatic grenade

launcher was also developed. The GA-1000 was fed from a box magazine and chambered in 40×47SR mm medium-velocity rounds, capable of a range of 1000 m. The weight was 8,7 kg. Neither of the weapons attracted any interest from the Army.

History

Only 30 years and Afghanistan and Iraq deployment showed, that there is a serious need for a small, yet powerful support weapon, capable of providing short-time fire support comparable with vehicle or tripod-mounted machine grenade launchers.

Contract with Mechanical Equipment Research and Development Centre Tarnów (OBRSM, Ośrodek Badawczo-Rozwojowy Sprzętu Mechanicznego) for the development of the grenade launcher was signed on the 9 March 2007. The process was conducted in cooperation with Warsaw-based Military University of Technology (WAT, Wojskowa Akademia Techniczna).



Zakłady **Mechaniczne** Tarnów



ul. Kochanowskiego 30, 33-100 Tarnów, POLAND, phone (48-14) 630 62 00, fax (48-14) 630 62 04
www.zmt.tarnow.pl



▲ The first model of RGP-40 from 2008. It still has repeating action and fixed stock. There is no marking for the drum chambers. CAA PPGRip dual-purpose grip/bipod was introduced

Analysis of existing weapon systems helped with finalizing the looks of Polish grenade launcher. Revolver type was chosen, with a six rounds capacity. The drum was to be actuated by a winding spring and its movement was to be controlled by a lever tied into the trigger.

The analysis resulted in planned specifications, construction, and additional documentation. Test station was also created and allowed for project examination at various stages: a model, a prototype, and initial trial series.

Model

In 2008 a functional model of the grenade launcher was created. It was based on the previously-mentioned documentation and received a 0863H OBRSM Tarnow manufacturer code.

Further development required testing of the mechanical devices and construction's durability. Durability was tested using overpowered

ammunition. Each drum chamber was subjected to two shots. Further trials involved reliability checks, ergonomics, and accuracy. Grouping was assessed at the 50 and 100 m range.

Firing mechanism was also tested. One of the parts of this was the measurement of combustion gas pressures (this examination was not initially planned in the development). The results were later used to create the semi-automatic action for the grenade launcher. This significantly improved weapon's functionality.

Prototype

Technical documentation for RGP-40 was created, based on previous trials. The documentation included modifications such as semi-automatic action and additional firing pin safety. Additionally, overall mass was reduced. Steel elements were replaced with aluminum alloys and their shape was changed.



▲ Lead designer Zbigniew Wójcik with a camouflaged model of a RGP-40 grenade launcher. The weapon was showcased at the MSPO 2009 for the first time

The M4 type, adjustable stock was installed. This allows the shooter to change its settings depending on elevation. Eight sling attachment points were also mounted. Additional slat protects the bottom of the drum and stiffens up the front and back covers. Barrel guard was reduced in size and adapted to additional mounting rails. Bottom accessory rail was shortened as well. Designers decided that only front grip or small bipod will be mounted there. Transport case and carrying case were also produced.

At this stage, OBRSM chose Meprolight MEPRO GLS-203 reflex sight for further trials of the prototype. It's equipped with orange, tritium-backlit aiming point. This cancels the need for any power source. The sight was set up to 50-400 m range. Targeting is very comfortable, despite the aiming line going through the front of the weapon. The shooter uses both eyes simultaneously, with one tracking the target and the other sighting through the optics. Biology makes sure, that those two

images are overlaid, and the operator's impression is an aiming point projected right on the target.

Despite the initial assumptions, RGP-40 was at this stage a semi-automatic weapon. Part of the combustion gases is redirected to the gas chamber where it releases the drum-holding lever. This makes the drum rotate by 60 degrees. The magazine can also be manually released by an additional lever. It's located on the left side of the barrel.

Two prototypes, including spare parts and accessories, were manufactured in September 2009. There was another series of examinations, which included mechanical systems such as safety, stock adjustment, and bipod deployment. The bipod itself can be unfolded with just one hand. Endurance firing tests were also carried out at this time.

Examinations

RGP-40 prototypes examinations were carried out next. Safety was the first thing tested. External



▲ RGP-40 from the test batch. One of these had titanium alloy elements. The other had it's mass reduced by cut-outs and material removal

safety switch was scrutinized by attempts to release the firing pin when in safe position. Internal safety was tested by misaligning the drum chambers in relation to the barrel. No issues were uncovered and everything worked as it should.

Next stage was to test the accuracy of the weapon. Grenades both ballistic and high-explosive (HE) were fired at the 100 and 325-350 m range. HE rounds were hitting the target and the shrapnel dispersion did not exceed 2.5-3.5 m. Exit velocity was also measured and the reading was taken 5 m from the barrel opening. This examination was carried out at the beginning of the testing and at 500 and 1,000 shots fired. Maximum velocity reduction was 2.2%, with 5% being the theoretical limit. Weapon durability was also examined. This involved in-depth analysis of the of springs utilized in the weapon and was conducted at the start and at the 500 and 1000 shots mark. RGP-40 tactical usability was also judged.

Environmental testing was another important stage. The weapon was examined at a very wide range of temperatures. Storage trials were conducted at -50 to +70 Celsius and function trials at -30 to +55 Celsius. There were almost no problems. No instance of autoignition occurred and the grenade launcher worked well. The only problem was with the drum rotation and was corrected in the due course.

Weather resistance was also put on trials. RGP-40 was subjected to frost, dew, 2 hours of rain, 2 hours water immersion, increased humidity, dustiness and sand at +55 Celsius. Mechanical tests components were also out with multiple strokes. The weapon was also placed on a vibration bed and examined at 1-80 Hz in multiple positions.

Tests results were positive and the weapon fulfilled the requirements of the durability testing. There was one jam in the course of 800 shots. This was caused by a hammer pin and was redesigned. Drum chambers' wear was within limits, despite



▲ Comparison of the model (foreground) with a prototype (in the middle) and a weapon from the test batch

the first chamber receiving the most of the stress (350 shots, compared to the 125-135 from the other chambers).

Trials were conducted at the OBRSM Tarnow facility and Nowa Deba training grounds. Grenade launcher fired 1,000 of a ballistic NGB-N rounds and 100 of an NGO-N1 HE rounds. To further reduce the weight, one of the prototypes underwent material removal from the rear body and the ammunition drum. Verified technical documentation suggested that rear body and barrel support should be manufactured from the titanium alloy (Ti6Al4V, also known as Titanium Grade 5).

Test batch

The test batch of weapons and accessories was manufactured in June 2010, according to the revised documentation. Next, documentation for mass production was devised. There is little difference between the mass-produced and

▼ First models and prototyped utilized Israeli made Meprolight GLS-203 reflex sight with an orange dot



prototype RGP-40. Barrel cover was shortened, barrel support was reshaped and rounded over. Sling attachment points were made smaller, stock holding nut was redesigned, so was the drum release hand lever.

Initial requirements limited the weapon's mass to 6.5 kg (unloaded, no optical sights) and length to 850 mm (with barrel being no more than 250 mm and round chamber 140 mm). The model did not fulfill those requirements – it was over 1.5 kg heavier. First RGP-40 prototype weighed in at 6.72 kg and the second one (after the mentioned material removal), massed at 6.49 kg. As this was borderline, titanium rear body and barrel support were introduced. This resulted in one of the batches weight at 6.1 kg. Length of the prototypes was 760/840 mm, depending on the stock's position.

The RGP-40 underwent all durability and environmental testing and was judged well for its design, ergonomics, functionality and tactical capabilities. After the testing was done, test

batch of two grenade launchers was made and mass production documentation was prepared. In the end, due to cost, titanium alloy was replaced with aluminum alloy. Thanks to well-designed cut-outs and material removal, weight was kept at a reasonable 6.3 kg.

Implementation run

The Poland's military quality and acceptance facility received the implementation run of 5 weapons in July 2013 and confirmed their compliance with technical and tactical requirements. Despite OBRSM incorporation into ZMT Tarnow in 2012, RGP-40 still carried their 0863H marks. Then it was replaced by 0233H – a Zakłady Mechaniczne Tarnow military code.

This batch of weapon was equipped with cheaper, Romanian IOR Valdada OS-40GL sights with a 4 MOA aiming point. This sight became standard for RGP-40.

▼ RGP-40 from 2009 prototype batch. A lot of changes were introduced. Most importantly – change to semi-automatic action which improved the safety



RGP-40

► RGP-40 grenade launchers during the final assembly

The Military Institute of Armament Technology (WITU, Wojskowy Instytut Techniczny Uzbrojenia) finished their examination in 2014. The life span of at least 5,000 shots was confirmed. Recoil energy was also measured. The maximum value was set for 30 Joules. For 40 mm low-velocity (LV) ammunition the result was 7 J, while the higher pressure 40 mm medium-velocity (MV) test rounds generated 17 J of recoil.

Technical Dialogue and Tender

Technical Dialogue concerning procurement of 200 revolver grenade launchers for 40×46 mm ammunition was announced in November 2013. 5 companies took interest in the dialogue. These were: Arminex Trading (with a Rippel Effect grenade launcher from SAR), Aycomm (Turkish MKEK T-40, licensed copy Milkor Mk 1 MGL), Monrex, Unitronex (with original Milkor from SAR) and Zakłady Mechaniczne Tarnów (with their fully developed RGP-40).

More than one year later, in May 2015, formal tender for 200 weapons, 6 cross-cuts, training munitions and other elements was announced. The tender was carried out in a special mode which stipulated that the weapon was to be manufactured in Poland.

It also transpired, that at some the Armament Inspectorate changed their requirements. The weapon system was to not only use 40×46 mm



▲ Transport case fits the grenade launcher, optoelectronic sights, cleaning/maintenance kit and hearing protection





▲ RGP-40 with titanium elements and without the sights and front grip/bipod assembly massed at 6.098 kg. This increases to 6.361 kg with the grip/bipod mounted

low velocity ammunition (350-400 m range) but also – surprisingly – 40×51 mm medium velocity rounds good for 700-800 m range. This resulted in majority of the interested parties deciding to leave the tender as they could not supply the weapons that would be manufactured domestically and shot the required types of ammunition.

The revised requirements stipulated, that the barrel should not exceed 310 mm and the full length should be no more than 950 mm. Mass limit stayed at 6.5 kg (without the ammunition and the optics). The grenade launcher was to be equipped with a 6-round drum, capable of holding ammunition exceeding 135 mm in length. This translated to special munitions capability (smoke, illumination, observation rounds). Practical rate of fire was to be 12 shots per minute with the aimed fire reaching up to 800 m.

Weapon's endurance was set at 2,000 shots without any deterioration in parameters. Army also requested, besides the standard opto-electronic

sight, that mechanical sights should be fitted to one of the side rails.

Finally, only three companies entered the tender. Arminex Trading offered the South African XRGL 40 for 40×51 mm ERLP ammunition, Works 11 presented the American AAM-W AV-140 and ZMT Tarnow offered their RGP-40. It's worth to mention, that the Polish weapon was designed to shot stronger ammunition despite the initial requirements for only 40×46 mm ammo compatibility. The winner – ZMT Tarnow – was announced in the February of 2016.

Characteristics

RGP-40 revolver grenade launcher is a personal firearm with a weight of 6.5 kg and a 250 mm barrel. It's transported and served by a single soldier. The drum magazine has a capacity of 6 rounds and the chambers are 140 mm long. Practical rate of fire is 12 shots per minute and it has a lifespan of 5,000 shots.



Thanks for chambers' length, RGP-40 can use a full variety of rounds, from multi-purpose (armour piercing high explosive, AP-HE) to special – smoke, illumination or nonlethal – options. When using 40×46 mm rounds, the range is 350-400 m. 40×51 mm ammunition increases this to 700-800 m.

The grenade launcher is equipped with an assortment of mounting rails located on the barrel cover and above the drum. It also has a front grip with integrated bipod and an adjustable stock. Romanian IOR Valdada OS-40GL is the standard optical sight. To match the Army requirements, weapon will be procured with additional iron sights located on a side rail.

RGP-40 is a semi-automatic weapon. The combustion gases are used here as an additional safety. If the round will get stuck in the barrel not enough of gases will reach the gas tube and the drum will not rotate, hence preventing the following shot. Most of the revolver grenade



▲ The grenade launcher is to be carried in a backpack style carrying case. Exterior has webbing designed to carry 6-round speed loaders



▲ Dust and sand tests at +55°C

◀ RGP-40, loaded with HE NGO-N1 rounds has a mass of 7.96 kg. It's significantly lighter than Polish armed forces UKM 2000P machine gun also manufactured by ZMT

300-350 m. In theory, the 5-meter blast radius of the rounds and the drum capacity allow for shrapnel saturation of almost 1000 square meters! This is way beyond capabilities of any other individual weapon system.

Three RGP-40s for the Police

Surprisingly, the first official user of the weapons from Tarnow isn't the Poland's Land Forces but the Police. At least, in theory. Police have the weapons but are currently in the process of ordering the special ammunition for the RGP-40.

On the 17 November 2016, the Police Headquarters in Warsaw announced the proceeding for procurement of three revolver grenade launchers compatible with conventional and special (including nonlethal) 40×46 mm and 40×51 mm ammunition. The proceedings were finalized and ZMT was chosen as the winner. Delivery took place on the 19 December 2016.



launchers work on the same principle. Normally, before operation, the weapon's drum spring has to be wound-up. This spring rotates the drum when the trigger releases the holding lever.

When compared to single shot grenade launchers, RGP-40 as a lot more firepower. It only takes 3-4 seconds to empty the 6 round drum. After another 2-4 seconds, the last grenade reaches the designated target at the range of



▲ In 2014, at MSPO, a special version for the Police was presented. It had simplified, polymer barrel cover with just one rail. This was done to reduce the overall weight

► Polish Army ordered two hundred RGP-40 grenade launchers in 2016. In the meantime, Police purchased and acquired three weapons

RGP-40 revolver grenade launchers were delivered to and tested in Szczytno Police Academy. During this time, trials were conducted to evaluate usability and to establish procedures. RGP-40 will also be tested with various special types of grenades, including non-lethal, foreign and domestic produced ammunition. The RGP-40 is to replace 26.5-mm (4ga) RGA-86 semi-automatic revolver shotguns.

RGP-40 the Polish Army

According to announcements from 2016, first RGP-40 grenade launchers were to be delivered to the 12 and 17 motorized brigades, equipped with Rosomak wheeled infantry fighting vehicles. Currently, it seems that the first grenade launchers will be provided to newly created Territorial Defence Forces (WOT, Wojska Obrony Terytorialnej). The new branch of Armed Forces is interested in purchase of 550 of RGP-40s. Each WOT squad is supposed to have one.





▲ The final version of RGP-40 revolver grenade launcher. Besides the optoelectronic sight, weapon has backup iron sights

◀ Mechanical sights were designed and developed in ZMT Tarnow. It has dual scales, for low- and medium-velocity ammunition. This solution is unique, first one in the world



In the case of Land Forces, it is yet unknown how many RGP-40 grenade launchers will be used in the platoon and if the weapons will be utilised by combat or support teams. The initial assumption was to have one weapon per squad or having 1-2 launchers per support squad. The first plan makes a bit more sense as the RGP-40 will supplement the underslung grenade launchers.

If the planned deliveries will be finalized, Polish Army will be the first to Europe to utilize revolver

grenade launchers at the squad level. Until now, such weapons were used by special forces.

There is one more open-ended question. What about the additional weapons for the RGP-40 operator? Should he have a service rifle or a carbine? Until now, an RPG-7 operator in Poland's armed forces was equipped with a 9 mm submachine gun. American doctrine shows, that the grenadier only has a semi-automatic handgun, but Americans are developing a grenade launcher-fired grapeshot type ammunition for combating close distance targets.


As a direct result of use of a different ammunition, revolver grenade launcher has a shorter range than machine grenade launchers. Low velocity

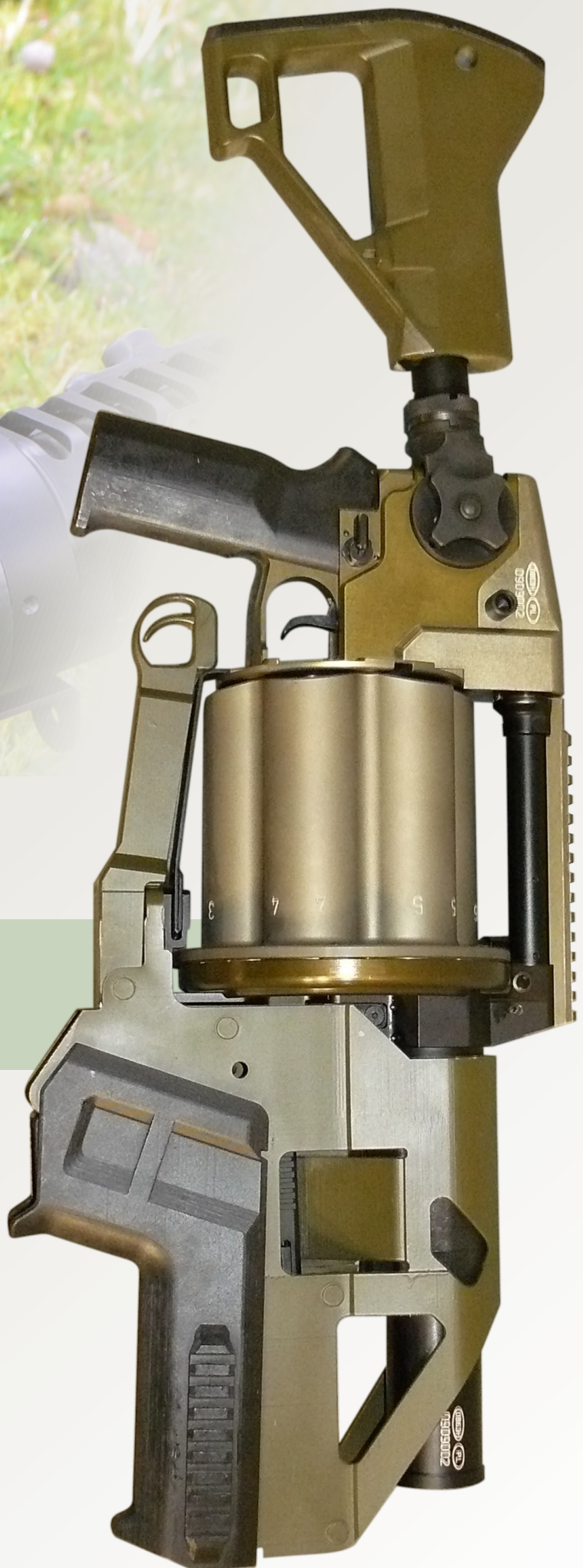


▲ RGP-40 is equipped with a Romanian-made IOR Valdada OS-40L sight. However the swiveling base with Picatinny rail accepts also different red-dot sights

► MSPO 2012 witnessed presentation of RGP-40 with an attachment for underslung Glock 17 pistol. It's quite an unusual solution to the problem of operator's self-defense

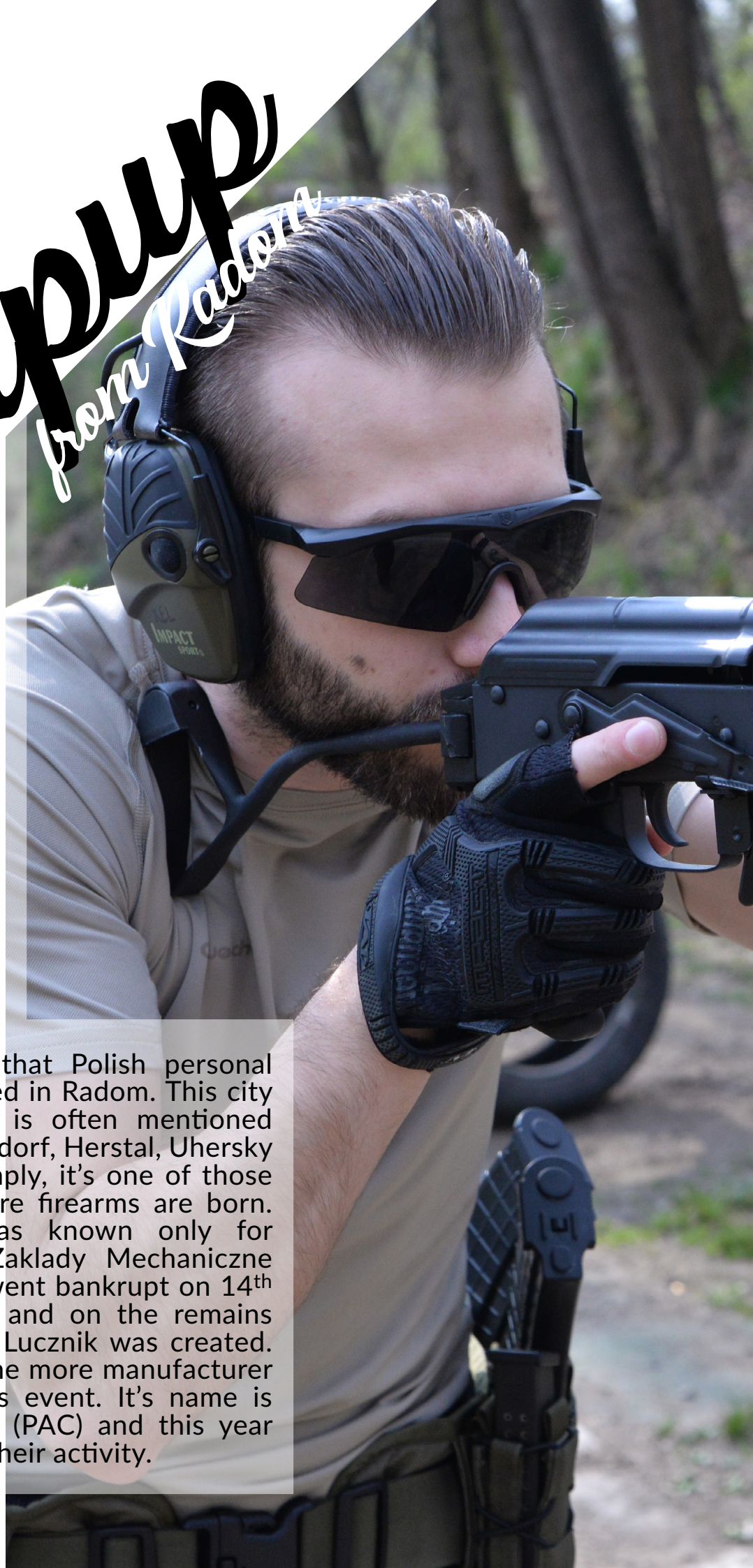
40×46 mm rounds have a maximum effective range of 350-400 m. 40×51 mm medium velocity grenades can engage targets up to 800 m, hence the push to use those with RGP-40. Ammunition used in automatic weapons 40×53 mm high velocity (HV) reach up to 2,200 m. However, the payload is exactly the same, so is the blast radius.

Moreover, revolver launcher can be carried and served by a single soldier. This gives tremendous capabilities on the modern battlefield, especially in urban environments. It would very hard, sometimes even impossible, for a crew-served automatic grenade launcher to be effectively carried and set-up in a building. Light and compact, RPG-40 will reach designated positions without so much effort. 



Steel Pump

from Radom



It's a known fact, that Polish personal firearms are produced in Radom. This city of 200.000 people is often mentioned together with Oberndorf, Herstal, Uhersky Brod or Brescia. Simply, it's one of those magical places, where firearms are born. Initially, Radom was known only for nationally owned Zakłady Mechaniczne Łucznik. This entity went bankrupt on 14th of November 2000 and on the remains of it, Fabryka Broni Łucznik was created. However, there is one more manufacturer that arose from this event. Its name is Pioneer Arms Corp. (PAC) and this year crowns 15 years of their activity.





✍ Paweł Ścibiorek
📷 Paweł Ścibiorek
Remigiusz Wilk

Łucznik is a well-known manufacturer, its inheritance going back to interwar times and past Second World War success. Fabryka Broni is focused on uniformed services and military. Despite attempts to market their products for civilian shooters, government sales remain its main livelihood. This created a niche in Radom. Niche, which is being well harnessed by another Radom-based manufacturer.

Polish Kalashnikovs

AK rifle buyers can choose from 3 different types nowadays. First is a military weapon with an auto-mode removed. Recent changes introduced by KE 91/477/EWG directive, put this kind of rifle in A7 category, which won't be available for civilian buyers. Second type is a semi-automatic weapon constructed from parts manufactured for military. The main problem here is the unknown quality of those parts. The last is a brand-new weapon, manufactured for civilian market. One can presume, how much potential and manufacturing powers producer has to have to make a weapon from scratch. Modifying a trigger mechanism or removing the auto-fire mode is immeasurably easier and less involved than, let's say, producing a barrel, gas chamber, slide, stock, and other weapon elements.

Pioneer Arms Corp.

Since its inception in 2002, PAC concentrated their efforts on firearms exports. Company is present in both Poland and United States (where it founded an Ltd. Company). PAC based their production on machines and spare parts bought after Zakłady Mechaniczne Tarnów went bankrupt. Civilian shooters in States were the main target group for PAC – a strategy devised by the company owner who spent a lot of time in the USA.

In 2007 Pioneer Arms Corp. designed a single action, external hammer double-barreled shotgun to be used in Cowboy Action Shooting competitions. It's a popular sport in USA, where



▲ Photos from Pioneer Arms Corp. factory show tens of ready Hellpups. Manufacturing capabilities of the Radom based company are quite impressive

shooters compete using weapons typical for Wild West period. Interestingly, shooters wear the period clothing as well. Shotgun debuted at the 2008 Shot Show in Las Vegas. PAC manufactured these weapons with short (470 mm, 18.5 inch) and full-size (610 mm, 24 inches) barrels.

Besides shotguns and weapon parts, PAC wanted to go into other firearms. It all started with modification of old military machine pistols – wz. 43 PPS for 7,62 × 25 mm ammo and wz. 63 for 9 × 19 mm round. These became quite popular on the American market. The automatic fire function was removed and the weapon was adapted to shoot with a closed bolt. The gun was named PPS-43C and due to very short – 250-mm – barrel and a folding stock it had to be modified to fit the requirements of ATF. The folding stock was welded and the gun was sold as a semi-automatic pistol. Same happened to the PM-63C and the construction was changed to shoot single fire from a closed bolt. Folding stock was also welded.



AK[®] FROM RADOM

LEGENDA WRÓCIŁA !

7,62 mm HELLPUP

Typ: Sportowy karabinek samopowtarzalny

Waga: 2.87 kg pusty / 3.35 kg z magazynkiem
30 nabojewym

Długość całkowita: 555 mm (21.85 in) (bez kolby)

Długość lufy: 298 mm (11.73 in)

Kaliber: 7.62 x 39 mm

Prędkość wylotowa: 660 m/s

Zasięg skuteczny: 400 m,

Maksymalny zasięg: 1000 m

Przyrządy celownicze: nieruchoma muszka,
regulowana szczerbinka

Magazynki: 10, 20, 30, 40 naboje

CENA DETALICZNA: 2750 ZŁ

Hellpup to w 100% nowo wytworzony karabinek sportowy na podstawie dokumentacji karabinka AKM produkowanego od zawsze w Radomiu. Dziś broń powstaje w tych samych budynkach, w których kiedyś produkowana była broń na potrzeby Wojska Polskiego jednak z wykorzystaniem najnowszej technologii oraz zaawansowanego procesu kontroli jakości, który pozwala na wytwarzanie broni najwyższej jakości.

Dystrybucja/ sprzedaż hurtowa oraz detaliczna / :



bron.sprzetmilitarny.pl

P.W. PA-KO
WITASZYCZKI 66
63-230 WITASZYCE
POLSKA

SKLEP@SPRZETMILITARNY.PL
+48 796 725 603
WWW.AKFROMRADOM.COM
WWW.BRON.SPRZETMILITARNY.PL

KONCESJA MSWiA: B-035/2008

ZAPRASZAMY DO WSPÓŁPRACY SKLEPY ORAZ FIRMY KONCESJONOWANE



▲ Muzzle device and gas chamber integrated with sight base. Front sight has a closed cover, similar to Chinese-made AK clones

AKM Resurrection

Pioneer Arms Corp. has been developing their manufacturing potential and employing more and more people in Radom. Their need to manufacture own weapons has been steadily increasing while the Zakłady Mechniczne and Agencja Mienia Wojskowego parts warehouse were running out. The easiest solution was to use the old company plans, tools and machines. This resulted in a restart of AKM manufacturing in 2012.

Since then, PAC produces two basic models in a variety of version, differing mostly in additional equipment. Rifles are made for both military users (automatic weapons) and civilian shooters (semi-automatic). The latter ones are the Sporter and Hellpup rifles.

Interestingly, PAC rifles are fully *made in Radom*. This not only concerns the easier to make, stamped parts but also barrels (which are not cold-forged but drilled and rifled using broaching method). PAC also has precision casting capabilities. This allows them to produce items such as gas elbows or other cast elements. PPS-43C and PM-63C parts are also made in the same facility.

The base *Kalashnikov* model from Pioneer Arms Corp. is a copy of AKM equipped with either fixed or foldable stock. It's based on original Zakłady Mechniczne documentation which makes it's size identical to military model. Rifle can be produced with wooden or polymer (black or brown) body and gas tube cover. The pistol grip is made of black or brown polymer while the fixed stock can be black plastic or wood. The foldable stock is available in two versions: one collapses to the bottom and is similar to the solution from AKMS. The other one is attached to the same mounting as a solid stock and is a copy of the design used in wz. 88 Tantal 5.45 mm rifle. It consists of bent metal rods and folds to the right side of the weapon. Affectionally, it's nickname is *poker*.

Export

Information on military exports is limited. However, it is known, that multi-thousand series of PAC 7,62x29 mm rifles are used in numerous African and Near East countries. These are mostly copies of AKM and AKMS rifles, in line



▲ The rifle as provided to MILMAG for testing. It has a POLI0008 serial number and is equipped with a Tantal-derived stock

with ordering party needs. Small amounts of automatic Hellpups were also sold. Moreover, over 100-person crew of PAC facilities works 3 shifts to fulfill the needs of the market. While domestic military contracts are also secret, quite a lot of selective fire Hellpup rifles are used through various uniformed institutions.

For many years, Inter Ordnance Inc. (I.O. Inc.) was the main PAC distributor over the Atlantic. Until recently, this was the main export channel for older products, Hellpups and Sporters sold on the American Market. Currently, distribution in USA is handled by PAC subsidiary. PA-KO from Witaszczyki is the main distributor of PAC products for Africa, South America, Europe and Canada.

PAC sells many versions of their weapons in the USA. These quite often are compatible with US-produced accessories and comply with local laws and regulations. Hellpup a very popular in a short, stock-less version and can be sold as a semi-automatic pistol (despite details such as construction or ammunition). In some states, it is treated as a handgun so can be legally carried in the car while loaded.

Company from Radom does not disclose how many of semi-automatic rifles make their way to USA, but we think that 9-12 thousand a year is quite realistic. If we add military production to that (twice or three times as big), we get quite a respectful figures and manufacturing potential.

Domestic market

Since 2013, small number of semi-automatic PPS-43 and PM-63 submachine guns in the foldable stock, open bolt design) filtered to the Polish market. Only since 2017, polish sports shooters can readily purchase the Sporter and Hellpup rifles.

PA-KO is the main domestic dealer and sells PAC products under two brands: sprzetmilitarny.pl and AK from Radom.

MILMAG managed to find out, that PAC is planning some new designs in their product range. Some will be AKM based, but other will be of a different design. These weapons will not only reach foreign clients but also be available in Poland. It's worth noting, that the modifications of gun laws from 2011 are finally coming up to



▲ Inside of the receiver and the barrel before firing. The rifle is supposed to withstand 15.000 shots (military-style shooting). There are no real chances for a civilian to fire it to the death

fruition – weapon manufacturers are seriously considering the civilian market as a valid customer base.

Few word on the AK

I feel compelled to remind that Kalashnikov rifle (AK, *Awtomat Kalashnikova*) was born in 1946, the manufacturing started in 1948 and was introduced into the army only one year later. Despite the legend, it wasn't a child of a single man (Michail T. Kalashnikov) but a result of work carried out by a team of soviet military experts. There are a lot of sources available nowadays that can help to trace the genesis of this project. Contrary to popular beliefs, these do not lie in Germany's Sturmgewer 44 but in the USA. A sudden development during the 3rd stage of design can also be noticed. Interestingly, some solutions used in the AK rifle originate from competitive designs, later rejected by the soviets. This makes a lot of sense, as the after-war times nurtured creation of best-possible weapons while not necessary sticking to a single person's ambitions and designs. Kalashnikov designed a base weapon in 1946.

It was called AK-1. What we see today as an AK is a collective work of many designers and military experts, who often forced changes on the development team. While is correct to place sergeant Kalashnikov on the pedestal, it's important to remember that his initial design was...rejected. Only after hundreds of changes and suggestions, the iconic rifle was born.

1949 AK, as accepted into the armed forces, had a milled body. Only in 1956 the process was simplified and made cheaper by replacing it with stamped parts. At the same time, many technological modifications were made. The most important included a change in the way barrel was mounted, adding an ergonomically handholds, lowering the mass of the bolt and changing the chamber, gas tube and return mechanism. Modernized AK reach the military units in 1959 and since than it's constantly manufactured.

AK took over the world. It was used in over 50 countries and it's image appeared on flags, post stamps and heraldic badges. Shown in hundreds of films and series, it became the most recognizable firearm since the Colt revolver. It's



▲ Hellpup with a fixed polymer stock.
This makes the rifle a lot easier to use



▲ Changing the stock, even in field conditions, is a piece of cake. The photo presents this process at the range, with just a multi-tool. Everyone can do it

one of the It's one of the long-lived designs, still manufactured in many parts of the world and constantly modified, adjusted to different ammunition. Modern AK clones, such as Polish Beryl and Israeli Galil ACE are produced on most continents and are as recognizable as American AR-15 and Austrian Glock.

Little Devil

For testing, MILMAG received the semi-automatic 7,62 × 39 mm PAC Hellpup rifle. Distributor provides 2 different models of this rifle – with a Tantal-style stock and with a fixed stock. Additionally, various elements such as pistol grip, gas tube cover and body can be ordered in black or tan polymer material or made of wood.

We tested the fully black variant with polymer elements and *poker* style stock. First thing that can be seen is a short barrel and modified gas elbow. Avid shooter will also figure out that this results in changes in construction. This is a good idea for European market as it makes the parts non-interchangeable between civilian and military models.

The rifle we got was brand new, straight from the factory. Before shipping out it was dry-fired 20 times and test fired to make sure it functions correctly.

The first impression is great. Parts are precisely machined and there is no slack anywhere. Black finish looks good and seems to be durable against normal wear and tear. When testing, we did not jump on it or throw it into the back of rock filled pickup truck. There was no crawling with the weapon or mud baths. Testing was done at the commercial shooting range so such activities would not be a good idea. But, since some armed forces accepted Hellpup as their equipment, we believe that it would easily withstand such treatment.

Rifle's front sights are ring-type, with an adjustment hole on the top. This is similar to Chinese AK copies. Users of AK's with semi-circle front sight might need some time to get used to changed aiming image.

Weapon has clear safety signs on the side. S-F letters indicate if the rifle is *Safe* or can *Fire*. Left side has three rows of markings with HELLPUP 7.62x39, PIONEER ARMS CORP and RADOM, POLAND. The



▲ 3 stocks were used during the Hellpup testing. The best (and most expensive) is the telescopic TDI Arms TRX. It requires a special adaptor

serial number is placed above and starts with PAC (abbreviation of the manufacturer's name), followed by 10 characters. USA export weapons have the distributor markings (I.O. INC, MONROE, NC).

Bolt carrier and gas tube are nitrided. This creates a hard, durable and corrosion-resistant layer. Sight base and gas chamber are precision-cast and nitrided in black. Tested rifle had the body, gas tube cover and pistol grip made of black, inject-molded polymer. Manufacturers produces these items in-house, using their own molding forms. Quality of these parts is top-notch.

According to manufacturer's specifications, Hellpup weighs 2870 g when dry and 3350 g with a 30-round magazine attached. Sporter model masses 3400 g when empty and 3890 g loaded. When we verified this the results were different. Hellpup with no stock produced 2646 g result on the scale (3136 g when loaded). Mated to Tantal stock, it weighed at 3122 g (3602 g loaded) and 2910 g (3390 g) with a fixed polymer stock. TDI ARMS TRX stock raised this to 3286 g (3766 g). Hellpup length is 594 mm with the stock collapsed and 788 mm with is folded out. Rifle with fixed stock is 794 mm.



▲ Rear of the upper receiver with the Tantal stock mount

Short barrel

When compared to stock AK, Hellpup's barrel is 117 mm shorter. It measures 298 mm, against the stock 415 mm. Is this good? Center of gravity has shifted, at least compared to normal AK. This makes the rifle more maneuverable. Obviously, shorter barrel results also in less mass.

Increased maneuverability is useful, especially when shooting in confined spaces or in dynamic shooting competitions. After collapsing the stock, rifle has on 594 mm – on par with some submachine guns models.

Hellpup's closest competitors are the semi-automatic Arsenal SAR M2F and SAR-M11F/M12F rifles. Despite very different names, the only difference is the type of stock. SAR M2F has a downward-collapsible one (similar to AKMS), SAR 11F has a fixed, black polymer stock (based on AK 100 series) and SAR-12F stock is made of round metal bars, arranged in triangular shape (as in Israeli Galil)

Inspiration is also very visible when looking at the front size base and the gas elbow. The main difference is the length (320 mm vs 298 mm) and the receiver (milled vs stamped).

Another good comparison to Hellpup are the AKSU-74 clones shooting 7.62 × 39 mm ammunition. On Polish market, available clones are Serbian Zastava M92 with 254 mm barrel and Bulgarian Arsenal SAR M4S/M4SF, SAR M14SF and SAR SF (again, only difference is in stocks) with 215 mm barrels. Hellpup's advantage against those is respectively 34 and 83 mm in barrel length.

Hellpup's barrel terminates with a muzzle device. It's fitted to a 14x1 mm left-sided thread and resembles a cylinder with two rings on it. Top is conical in shape and has a cut-out all around. It does not look like any popular model and is loosely based on a muzzle device from AKSU-74 or Polish wz. 89 Onyks rifle. Perhaps, this design was supposed to limit the recoil and help with burning process, but the difference is not perceptible. Hellpup's short barrel, coupled with this muzzle device, generates a visible *ball of flame*, when shooting after dark. In normal light conditions, this does not affect the shooter at all.

Short stock

Tested weapon was equipped with a tubular rod stock, similar to one used in Tantal rifle. At the first glance it looks good and shortens the rifle by quite a margin. *Poker* is formed in such a way, that even after collapsing to the right side, it's still comfortable to manipulate the cocking handle. Stock is well made and does not wobble in either position. In theory, it should provide good support, even when shooting multiple rounds.

Trouble is, that the stock is an ergonomically a nightmare. It's too short, has nothing even remotely resembling the cheek support and looks like something created in 1960 and designed for small and short people.





▲ With the stock collapsed, Hellpup becomes really small. It measures 594 mm – just a tiny bit more than the laptop I'm using to type this up

▲ Hellpup after ME accessories were mounted. This included Tornado muzzle device, front grip/top cover and mounting plate for a sling. TDI Arms universal rail is fitted in place of the rear sight



▲ AKGN and Hellpup accuracy comparison. 5 shot series were used and, despite shorter barrel, Hellpup won this round. Good trigger feel might a factor here

I'm a bit taller and stockier than theoretical, average target user of this contraption and I have a serious problem obtaining the right shooting position when using this stock. It's simply too short. Even many layers of clothing coupled with a sizable vest does not alleviate this issue. It's uncomfortable, period. The weapon was also tested but slightly smaller folk (170 cm tall) and they also reported similar problems. Looks like the *poker* style stock is designed not to be comfortable for anyone.

Distributor thoughtfully realized the issue and included a bit longer, fixed stock and a mounting kit for an adjustable stock, M4-style (TDI Arms TRX in my case). After short introduction the *poker*, everyone wanted the thing replaced. I even forgot about the Tantal-style stock until I've seen the photos – tried to displace it from my memories. This shows the level of my *sympathy* for this contraption.

All problems disappeared after fitting the fixed stock. It's a bit longer, well shaped and gives noticeably better support. Moreover, the shoulder pad is slip resistant. M4-style stock is even better.

Coupled with the Hellpup it makes for a really comfortable combination.

Small gunsmith

Home-brew gunsmiths will be happy to hear, that exchange of the stock requires only removal of the receiver cover. The return mechanism has to be removed next and is followed by not very challenging unbolting of two fasteners (screwdriver and brute force required). Whole modification takes about 2 minutes (includes looking for a missing tool) and anyone able to cope with 7,62 × 39 mm ammunition recoil is qualified to perform this modification.

Muzzle device replacement is also simple. 14x1 mm left thread is typical for most AK clones and the only requirement here is a certain level of physical strength (more when it's done the first time). I have to admit, it was quite challenging to unscrew the device at first. Thread lost some of the combustion products through, which results in seized device. A good advice would be to protect the threads somehow, before use of the weapon.



At the range

Rifle was tasted mostly on a 100 meter range. First few rounds disappointed. Out of 5, nothing hit the target. I'm not such a bad shooter. As it turned out, front sight needed vertical alignment. Factory setting made the round go about 1.2 meters above the aiming point. No horizontal adjustments were necessary. I'm not sure, if the described issue concerns all the Hellpup rifles or just my weapon.

30-round polymer magazines, supplied by sprzetmilitarny.pl, worked well with the rifle. Same goes for the standard metal stamped AK/AKM magazines and a full range of modern FAB Defense, US Palm and similar solutions. There were no problems with feeding.

As already mentioned a couple of times, poker stock was a real problem. I highly recommend the fixed stock version or replacing the Tantal-style solution with something else. This increases the user comfort by significant margin. In the end, my Hellpup received TDI Arms TRX stock (available at sprzetmilitarny.pl), mounted via the Ukrainian ME adapter. I have no reservations about this combination.

▼ The entrance of the 298 mm barrel. Rifling is achieved by broaching.





▲ Inside of the upper receiver. From the top, we can see Hellpup, AKGN, and AKMS. Commercially available rifle is the simplest but it was created with civilian market in mind

Recoil is similar to other 7,62 × 39 mm rifles. Hellpup with standard muzzle device jerks up, but no more than comparable AK and AKM clones. Of course, milled receiver models are easier to control but the weight becomes an issue.

Durability

Corrosion is a well known issue for Kalashnikov system weapons. This especially concerns elements such as a gas tube. Rusty layer shows up after only a few hours of shooting while after 24 hours, the gun safe echoes with the sound of corrosion. To check the Hellpup I used the worst possible ammo I could find. These were old army rounds, dirty and corroded. I did not even try to guess what the round were made of... but they looked dirty.

Furthermore, the Hellpup was not cleaned for a month. Durability testing, no excuses. Despite an enormous amount of residue in the barrel and on other parts, there was hardly any corrosion. When compared to AKGN rifle, similar amount of corrosion showed up after firing just 30 rounds, not hundreds as I did with Hellpup.

Nitriding process seems to do it's job. I expected black, tar filled barrel but it turned out to be quite clean.

Comparison

It's good to have something to compare against. I decided to judge Hellpup against another AKM clone from my collection – the AKGN rifle, with a milled receiver. I bought it with an intention to have a durable weapon, usable for many years. After firing just a few rounds from Hellpup, my affection to AKGN reduced by quite a bit.

First, most noticeable difference is how the mechanisms work. Hellpup's are lot more smooth and positive. Obviously, it's not a level of AR clones manufactured by Daniel Defense or POF-USA but a difference between AKGN and Hellpup is very noticeable.

In the process, I managed to understand why there was a change of pistol grips between AK and AKM models. The AKM's grip is boarding on truly ergonomic – it's lot more comfortable. There is no difference of comfort between the front



▲ During testing, 750 shots were fired. This is 0.05% of the rifle's projected lifespan. Due to bad quality ammunition, two jams and one serious malfunction happened

Theoretical lifespan concerns *military* style of shooting, with periods of automatic shooting, when the rifle's use is extreme. Civilian, semi-automatic version, used by a single owner will most likely last for a lot longer. The best test for Hellpup would be to check how it works on a big, commercial shooting range when used intensively by a lot of shooters or during the *very fashionable* tactical shooting course. My experience however, tells me that the AKM from Radom will outlive the theoretical manufacturer's lifespan

Accessorize, Accessorize

The kit, besides the rifle itself, contained black polymer magazines and a bag for those. It looked like a modernized version of 1960's grenade carrying bag and would please any history buff. Period-correct belt and a 2-chamber oiler were also included.

Most users will be happy to hear, that almost all accessories compatible with AKM rifles will work with Hellpup. Besides the barrel and the front sight base, Hellpup's dimensions are identical



▲ Hellpup's Bolt carrier is slightly shorter than typical AK/AKM. Rest of the dimensions are the same. Bolt and bolt carrier are nitrided



▲ Size comparison of AKMS and Hellpup. The last one mentioned has the barrel 117 mm shorter than 415 mm standard

grips. Modernized Kalashnikov's hand supports do nothing. Both rifles are comfortably held by the magazine. Hellpup's trigger works well, in fact much better than AKGN's. However, twice I had problems with trigger reset. Both times this happened, I was firing quite rapidly. Trigger stopped before it's resting position and, when actuated, weapon did not fire. It was necessary to fully remove the trigger finger to reset. It's hard to pin down a reason for this. Perhaps it was due to the lack of cleaning – for the purpose of this test I restrained myself and left it *unclean* for a month.

Shorter barrel results in a shorter sights distance. Is it a problem? At the 100 m distance I tested the weapon, there was no difference compared to standard 415 mm long barrel. Hellpup even had better grouping than my AKGN.

Jams and malfunctions


While testing, I had two jams. Both were caused by faulty rounds (primer did not initiate). The worst malfunction was the round getting stuck in the barrel. Again – ammunition. It was really the nastiest

stuff I could find, manufactured around 1960 in a factory that ceased to exist 20 years ago. The stuck round was caused by the primer firing but not initiating the main charge. It was enough to drive the bullet a couple of centimeters into the barrel.

Described situation can be very dangerous if the shooter fails to notice that barrel is plugged up. Consecutive shot can cause the barrel to expand or even explode. Sometimes, especially in cheap AR-15 clones made of inferior materials, wounds can be sustained by the shooter as well.

Luckily, this time I noticed the malfunction and stopped shooting. I did not want to test the rifle's durability to such extremes. There were no problems with removing the stuck round and the problem did not affect the weapon in any way – accuracy stayed the same.

As a side note, it's worth mentioning that the manufacturer does not recommend use of cheap Chinese 7,62 × 39 mm ammunition, available lately in Poland. The recommendation is based not only on it's poor quality but also on a slightly larger diameter of the round. This can cause quite a bit of headaches. Interestingly, to keep the users happy



and able to buy cheaper ammunition, the new batch of Hellpups will be manufactured with wider barrel tolerances – this should prevent the cheaper ammunition from getting stuck.

Wear and tear

750 rounds were fired during the testing. For kalashnikov rifles it's simply just *run in*. Some lesser quality rifles developed problems even at this early stage. With Hellpup this is not an issue. There was no visible wear on the elements. Truthfully, 750 rounds of mostly single fire, with some rapid fire included, is nothing compared to rifles shooting in automatic mode.

Manufacturer states, that a trial weapon was constructed out of random parts from the warehouse and 15.000 shots were fired from it. Test consisted of 120 shots, followed by cooling and inspection period, followed by another 120 shots. And so on. After the trial there was no significant wear on the rifle elements. Theoretically, Hellpup's lifespan is limited to 15.000 shots but it looks like it can be used well after that.

▲ Some tests were carried out using ammunition looking like it was left in a ditch for 40 years. To get rid of a bullet stuck in the barrel, hammer, metal rod and some felt were used



▲ Hellpup is a good beginners rifle and a great second AK for collection. It can be modified and abused without any regrets

to the standard AK. By *standard* I mean the one probably buried under the Izhevsk factory, to serve as a benchmark. The amount of gear available makes it very easy to modify the rifle to the user's needs (and wants). It's a big advantage, compared to Bulgarian, Serbian or Israeli clones.

My modifications

I was more than happy to test the beforementioned adaptability. Besides the TRX telescopic stock, I added the TDI Arms mounting rail. It replaces the rear sights and is available in sprzetmilitarny.pl.

Another modification was a set of front grip/gas chamber covers made by Ukrainian ME company. It consists of 2 parts, made of aluminum and is bolted together. Top element has a short mounting rail and 2 rows of slanted ventilation holes. Front grip is smooth, with 3 rows of KeyMod holes at a 90 degree angle. Each side has 7 holes, bottom has 5. It handles great, looks great and is significantly lighter than its *rail-laden* counterparts. KeyMod system enables the user to customize while keeping the grip's weight at a nice 185 g.

The last nice touch from the Ukraine is the sling mount. It attaches under the pistol grip and keeps away problems connected with stock adjustment and the sling getting in a way.

Lastly, ME Tornado muzzle device found its way onto the Hellpup. It's a combination of recoil compensator and a muzzle break. It weighs 96 g, measures 71 by 25,8 mm in diameter and has a 24x1.5 mm right thread. This forces use of an adapter to fit it to the Hellpup's 14x1 mm left thread. Device makes the rifle look aggressive and *battle-ready*. It exhausts the gases very efficiently but the angle of the exhaust holes could be improved upon as some gas gets directed towards shooter's hands.

Sum up

So...I shot some rounds, added some accessories, complained some about the *poker* stock, freed the bullet stuck in a barrel and ended up finally cleaning the weapon. Time to sum this all up. Who's the Hellpup for? It may work for first time rifle owners but in this case there is a big




▼ Partially disassembled rifle with the adjustable stock. This solution is good even for shooter with very long arms

competition from the Sporter. Most beginners would prefer a rifle looking as much as an original AK as possible. And if it's build out of old parts from Radom it's even better. But this approach has a downside – such a *period correct* weapon will cost in excess of 1000 euros and will be, in fact, a mix-and-match of old parts. Economically, Hellpup wins hands down. It's readily available, manufactured in the country, has warranty and PAC provides user support

I will highly recommend Hellpup for someone looking for short, quite powerful weapon. For AK clone Hellpup works very well. It's mechanically sound and reliable. Get the fixed stock version. Poker stock looks good but is a nightmare to use.

After some head scratching we decided, that Hellpup is an ideal *second* AK rifle. It's not original, valuable weapon. It can be modified, painted and abused without losing its value. It costs less than coveted original AKM and after 10-15 thousands shots it will be barely run-in. Plethora of accessories makes it friendly for just about anyone. If something can be attached to AKM, Hellpup will accept it.

7.62 × 39 ammunition prices are in the rise and pretty much caught up with 5.56x46/.223 pricing. Economy of ammunition was a winning point for AK clones 2-3 years ago. Not so much nowadays. It's less accurate than an AR-15 clone but can still be a fun rifle to own.

Hellpup with a polymer fixed stock costs about 700 euros (same price as Sporter model). Poker style stock is worth 10 euros more. Bulgarian Arsenal SAR-M2F, sometimes available of Polish market, is usually 50 euros more expensive and not compatible with many standard AK accessories. It also has issues with some styles of magazines. On the up note, its muzzle device is more effective. Not a problem though, Hellpup's device can be easily exchanged. 

**We would like to say Thank You to
sprzetmilitarny.pl/PA-KO
for providing the Hellpup rifle
and accessories for testing**





BERYL.

SPRAWDZONY W BOJU. BATTLE PROVEN.



TEST: FAB DEFENSE PODIUM >>>





At the end of 2016, the Israel based FAB Defense, introduced an interesting AR-15 accessory into their product range. The Podium is a mini-bipod made of plastic. Interestingly it is not mounted to the accessory rail or weapon body but to the pistol grip and magazine well. Certainly it looks appealing, but is it useful and practical?



📄 Paweł Ścibiorek

📷 Paweł Ścibiorek



The first iteration of mini-bipod from FAB Defense was destined for Israeli bullpup rifles from IWI Tavor family - namely TAR-21 and X95. Presently the Podium is available for all types of AR-15 and AK variants. The *black rifle* model was the one that MILMAG received for testing.

Why Podium

FAB Defense representatives state that this new solution is better than the typical bipod for a number of reasons. One of the suggested reasons is that it saves space on the accessory rails. This is a slightly exaggerated argument in my opinion, as there is sufficient space for additional equipment on an AR-15 carbine.

A second reason carries more weight. The Podium's placement between the grip and the magwell, near the weapon's center of gravity influences weight balance. A normal bipod, attached at the front of the gun, makes the rifle front-heavy. The FAB Defense solution does not cause this and allows for easier target transitions and rifle handling. In addition, deploying a classic bipod usually takes about 10 seconds and involves using one of the hands. More time is taken by adjusting the height of the bipod legs to match the surface. Sometimes there is no time for this in a rapidly developing situation. With the Podium all that is required of the shooter is to move the hand on the grip and press a button. The legs deploy automatically.

Design


The Podium consists of AGR-43 pistol grip, base with extendable supports and a magazine well clamping ring. The overall weight is 357 grams (12.6 ounces) and includes the pistol grip. Without it, the weight equals 237 g (8.4 oz.). The tested



unit was made of a strong, dark green plastic. Black and tan colors are also available.

The supports are spring loaded and when collapsed fit into the wide base. The legs are deployed by pressing a small button, placed on the back of the base, near the bottom edge of the pistol grip. As the button is pressed, the supports deploy and remain in this position. The legs can also be deployed partially, but in this case the locking mechanism will not work.

To collapse the supports, the shooter must pull on them in their direction. This can be done by touch only, without taking the eyes off the immediate surroundings. Even in total darkness the shooter knows that the legs are folded as there is an audible click when the lock is engaged.



▼ The kit consists of 4 elements - grip, 2 parts of clamping ring and a base with integrated bipod. 5 bolts and 2 allen wrenches are also included.

Assembly

The Podium is fixed to the pistol grip and to the AR-15 magazine well by means of the mentioned clamping ring. It's easy enough and does not require visiting the gunsmith. Fitting the bipod takes about 4 minutes and requires a screwdriver (used for removing the existing grip). Other tools (2 allen wrenches) are included in the kit. With a little bit of experience it can easily be fitted in the field.

The original pistol grip has to be removed first. A note of caution here: do it carefully with the rifle resting on its side. The fire selector/safety spring sits just above the grip and if it is yanked hard the spring (which is very small), could very well fly off and be difficult to locate.



▲ Fitting the Podium to the rifle is very easy and takes less than 5 minutes. One has to be careful not to loosen the fire selector/safety spring when removing the pistol grip.

► The supports fit into the base, which also serves as an enlarged hand-guard. The forward part of the supports have serrations which improve the grip and prevent the hand from moving.



The FAB Defense AGR-43 grip is then fitted, using the same bolt. It is necessary to use it as the Israeli manufacturer did not want to create a universal base. There are thousands of grips available on the market and creating a *fit-all* base for all grips was out of question. If the operator wants to use the Podium they will have to *get to grips* with the FAB Defense grip. Ergonomically, it is better than most pistol grips for AR-15 and a rubberized surface promotes better handling even with wet hands.

The Mag well ring must be assembled from 2 parts, fixed together by 3 bolts. Interestingly, there is an access hole drilled into it, which enables easy removal of trigger guard pin without disassembly of the clamping ring itself. This can be especially useful in winter when the shooter might be wearing thick winter gloves.

Using it

After assembly, everything looks *quite pretty* and part of the ring acts as an enlarged hand-guard. Functionally and ergonomically, the bipod placed in the center of the rifle has its real advantage. The normal front grip can be easily fitted and nothing will get in a way when using it. Traditional bipods, even with collapsed supports can often hinder the front hand. Also the weapon balance remains

unaffected. The standard, steel bipod can weigh up to half a kilogram and quite often it is located beyond the usual support points for carrying and shooting the rifle.

Initially, I was concerned about problems with magazine changes when the Podium supports are deployed. These concerns were unwarranted as the legs move easily and magazine can be changed without any issues.

When collapsed the supports fit into the base. There are no protruding elements that could catch on the shooter's clothes, equipment or surroundings. This is another advantage of FAB Defense solution.

The rifle equipped with the Podium bipod sits about 40 - 50 mm (1.5 - 2 inches) higher off the ground than one fitted with a traditional bipod. There are no adjustments in the supports and they always extend to the same length. The deployment is very quick, literally *at the press of a button*. To press it, the shooter must either move his hand on the grip or use the other arm.

At the range

The Podium supported rifle sits fairly high. It does not create any problems with posture or weapon handling and even makes it a bit easier to aim at targets below the shooter. Of course the rifle height makes camouflage slightly more difficult.

When shooting, the rifle is stable and I did not notice any significant difference between the Podium and a typical bipod. One has to realize - this is not a precision shooting accessory and was not designed as one. For proper marksmanship, the traditional, adjustable bipod is better (yet heavier).

While I keep calling Podium a bipod it is in fact an additional accessory similar to a front or side grip. After the supports are deployed the weapon will always sit straight and there is no side movement without taking the legs off the supporting surface. To track the target the shooter has to move the whole rifle.

Despite the rifle sitting higher than the standard bipod, with supports mounted in a different spot, I did not notice any significant increase in weapon *jerk*. However, I wonder if this would be the case with AK rifles, which recoil stronger than AR carbines.



▲ When fitted, the bipod does not make the rifle significantly larger and still allows full access to weapon controls and the magazine.



▲ The release button is located in an easily accessible place (at the lower part of the pistol grip) yet it is hard to press it by mistake.

▼ The supports move easily when the magazine is changed and do not get in a way when handling the weapon.





▲ The Podium supported rifle sits quite high. It does not hinder the shooter in any way and at times might even be easier to aim at targets located below shooter's line of sight.




Additional functions

When not shooting the Podium also doubles as a very practical... stand! With the legs deployed the rifle will always stand perpendicularly to the ground. This makes it easy to strip, clean or add other accessories to the weapon. If the shooter is on a muddy or snow covered range the Israeli invention is very handy as the rifle can be rested on ground without too much worry.

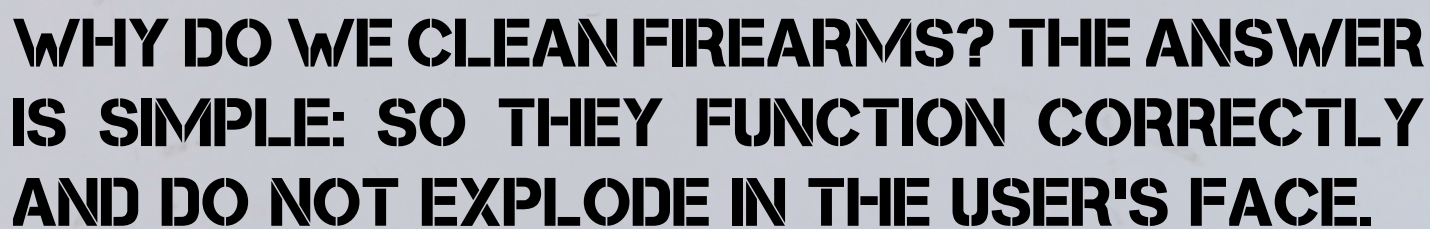
Is it worth it?

In one word? Yes! The FAB Defense`s Podium works great for recreational shooting and for dynamic competitions when rifle supports are allowed. It does not get in the way of using the gun and access to weapon controls and the magazine release is not hindered.

I had no reservations about using it when training or just shooting for fun or recreation. Moreover, when it started getting wet and muddy I appreciated having a clean and dry weapon in my hands. The Podium cost is around 110 dollars. 

WEAPON CLEANING FOR DUMMIES







✍ Paweł Ścibiorek

📷 Paweł Ścibiorek



▲ Glock 17 after firing about 200 rounds. On the close-up you can clearly see burns on metal elements and on a composite gun skeleton (including the magazine slot) as well

When propellant burns it leaves some residue in the firearm. This residue is a contaminant, and consists partly of very strong acids (mainly nitric and sulfuric), which not only affects the mechanism but also causes corrosion. Residue embeds in all parts that have contact with propellant gases. It would be very hard to give a definite list of these parts here as it is dependent on the firearm design but we can say that it's mainly the barrel, the bolt and the gas tube. Copper is another type of contaminant to be found in the barrel. Rifling not only rotates the projectile but also scores it. This creates friction and very high temperature which leave particles of the projectile jacket (copper) baked on the inside of the barrel.

With firearms the working parts as well as the barrel are made with certain tolerances. These tolerances allow the firearm to function despite the contaminations being present. For some firearms these tolerances are minute (precision sniper rifles), for others are rather larger (AK-47). Despite these tolerances, at some point the contaminations will affect the weapon. Initially, this will result in stoppages and eventually may even stop the projectile in the barrel.

How often should we clean the firearm? It depends, ideally every time after the weapon has been used. There are four methods of cleaning available: mechanical, electrolytic, ultrasound and chemical.

Cleaning methods

Mechanical cleaning removes dirt and debris by use of brush or other tool. It's conducted dry and is not really efficient. Moreover, frequent mechanical cleaning can result in a shorter life of the barrel (rifling gets worn).

When electrolytic cleaning is employed the dirty elements are immersed in an alkaline solution and a direct current (D/C) is applied. It's a very effective method but requires a lot of knowledge and is not recommended for the beginner. If not conducted properly it can damage the parts being cleaned.

The ultrasound method involves the use of ultrasound for the cleaning process. This technique is often used for cleaning bullet cases for handloading. The dirty parts are placed in a vessel containing cleaning solution, the effects of the ultrasound then cause the contaminants to separate from the parts.



▲ The cartridge chamber and the lock were treated respectively with foam and cleaning agent

It's the most firearm-friendly method but requires complete disassembly of the firearm and the access to an ultrasound cleaner.

The most popular (and cheapest in comparison to the ultrasound technique) method is chemical cleaning. To be precise, it's more like chemical-mechanical cleaning, and requires use of special cleaning solutions followed by the use of cleaning accessories. This process will be the focus of this article.

Let's get to the work

To start with, check the firearm is in a safe condition (unloaded and cleared), then disassemble it. Small parts go into a container, so we don't lose them. After the parts are arranged on the mat and the gloves are on we can start the cleaning process. Try to keep all the necessary cleaning kit handy so we don't dirty our working area. Keep some paper towels laid flat, it's useful when waiting for cleaning solutions to do its magic. Wiping the gloves from time to time is also a good habit as this will prevent the contamination of already cleaned parts.

▼ Glock freshly after cleaning



You will need:

- a cleaning mat, so we don't dirty our work area
- protective (nitrile) gloves as the cleaning solutions are usually quite harmful to skin
- a cleaning rod
- barrel brushes
- a pull through rod attachment
- cotton rags
- q-tips
- pull through patches
- paper towel
- a brush
- barrel cleaning foam
- gun oil
- grease
- corrosion protection treatment
- some containers for small parts and for used patches/rags
- tools specific to a particular weapon model you will be cleaning



▲ Just wiping with a cotton cloth before using chemistry removes a lot of residue



▲ AK bolt carrier before cleaning, after firing about 50 cartridges



▲ The same bolt carrier after cleaning



◀ Felt pushers arranged in order of passing through the barrel (from the top) – you can see how with each subsequent decreases the amount of dirt in the barrel



▲ Cleaning rods: uniform and folding, more convenient to use when cleaning a weapon with a shorter barrel



◀ Copper tips for various calibers - up to down .12, 7.62 mm and 5.56 mm



► Cotton tips for cleaning rod, for .12 and 7.62mm caliber barrels. First one fits nicely the gas chamber of AK



◀ When cleaning hard to reach places it's worth to help yourself with dedicated tools



▲ Rifle with foam injected into the barrel and set aside until the chemical softens the residue

Start with removing dirt with a cotton cloth. Some of the dirt will be quite loose and we will save on cleaning time by removing this, so the chemicals don't have to dissolve it. Q-tips also come in handy now (flatten the tip with a multi-tool to reach those hard-to-reach places).

After these preparations, the chemical solution is used. Squirt the cleaning foam into the barrel (it will dissolve the baked on contaminants, copper and lead). Read the instructions, but it usually takes between 15 to 30 minutes for the foam to do its job. Use a copper or bronze brush attached to the cleaning rod. When making the first pass it's good to blank off the barrel end so all the foam will get onto the brush. It usually takes about a minute or two of energetic work to clean the barrel. If the weapon has not been cleaned for a long time some more work may be necessary.

When the brush has done its job, it is removed from the rod and a pull through attachment is added for the cleaning patches. Use those patches to collect the remaining dirt and traces of the cleaning solution. Do it until the patch leaving the barrel is clean and dry. Look inside towards a light source to check that it's clean. There should be no black spots

nor marks or any damage inside the barrel. I would recommend using a brush or a cotton patch at the end of the cleaning process, this way the remains of felt from the patches will get removed.

Instead of foam gun cleaning oil can be used. It's squirted into a plugged barrel and takes about 15 minutes to react with the contaminants. The rest of the process is the same as described previously. Despite the foam being more expensive, I can say from experience that it's also more efficient and I highly recommend using it instead of cleaning oil.

The next step is to remove the previously applied lubricant from the working parts as we want the parts to be dry. Then the working parts are sprayed with the cleaning oil which gets applied with a brush (a stiff toothbrush works good). When finished wipe the parts with a clean cotton rag and a q-tip as required.

Anticorrosion chemicals are applied in small quantities and only on the parts that are prone to corrosion (like metal springs). If you plan to clean the firearm regularly, there is no need to do this every time. If the weapon will be stored for a long time, apply the anti-corrosion chemicals. Remember that cleaning oil also has some anticorrosion qualities.




▲ AK bolt carrier and chamber before cleaning, after firing about 50 rounds

Polymer parts get the same treatment minus the rust protection.

Oiling

After cleaning, working parts have to be re-lubricated. It is important for the durability of these parts, as a lubricant helps to prevent friction. Apply lube in small quantities only to the bearing surfaces of the working parts. Use a finger or a q-tip to spread the lubricant evenly - don't go overboard with the lubrication as a thin layer is more than enough (relevant environmental conditions apply). Remember that lubrication (oil) is sticky and will attract sand, dirt and other contaminants, too much of it will cause stoppages. In fact, this is another reason for lubricant removal when cleaning as we remove contaminants with the lubricant.

Before storing the weapon. Carry out all the usual functionality checks to see the firearm is operating correctly. This will save some unpleasant surprises at the range.

The above article is not a detailed how to. It's just an introduction to a series of texts about firearm care, chemicals, looking after wooden stocks etc. 

▼ The foam works great not only at cleaning the barrel, but also the gas pipe



A black assault rifle, possibly an AR-15 style, is lying on a patch of green grass. The rifle is equipped with a black scope and a tan tactical bag strap is visible in the foreground. The background is a soft-focus green field.

HUSAR CUBBY ADMIN POUCH PLUS

Waist bags, *fanny packs*, bum bags, are an old design. We all knew someone who had one. It's a key equipment for traffic wardens and small-time street merchants. A waist bag – which easily carries change, notepad, pen or a spare magazine – is also a useful part of equipment.





HUSAR

me-pro.com.ua

HUSAR

sprzetmilitarny.pl



 Axel Jach
 Axel Jach

Popularity of a fanny pack has been noticed by various *tactical tailors*. Every well-known brand of tactical gear has at least one product which can be used as a waist bag. One of these manufacturers – *Husar* from Bielsko-Biala (Poland) provided a product for me to test.

Bum bag

EDC is growing in popularity lately. Historically, carrying all necessary equipment on a person isn't something new, but it's starting to grow popular in general public again.

By watching internet mediums, we can see that more and more young people want to everyday carry more than a wallet, phone and keys. They want to have the *unobvious* stuff like knives, multitools, flashlights, string, first aid kits, fire starting equipment etc. At the same time, a lot of folk want to share their EDC with other people. This makes them a part of a special group of population, which always carries kilograms of gear useful in such random situations as zombie apocalypse or a snapped shoelace.

At some point, the gear will literally *pull our pants down*, even when our belt has a fancy, Austrian made buckle. If we can't, or don't want to, carry a backpack, we have a problem. Women don't have this problem – they have their purses. But what about men? Nowadays, real men also carry purses. They are called *waist bags*.

A bit of luxury

Husar Cubby Admin Pouch Plus (it's a mouthful) waist bag comes in an ordinary brown cardboard box. Box has a manufacturers logo on it (worn-out stamp style). When we open it the pouch itself is a bit different than what we know. It's wide, not

▼ Bag consists of two compartments. Front one is smaller, while the main one has a useful D-ring sewn in



very tall, very angular and, at a first glance, not very anatomic. But it's just a first glance, please read on.

High quality stands out. Pouch is made of 500D Cordura and hypalon. It has single straight stitching and key spots are reinforced with bartack stitches. There is no fluffy thread sticking out and inside has a label with hand marked manufacturing date, serial number and a name of the tailor. Almost like in an elite, limited edition products.

Besides the pouch itself, box contains a leaflet concerning the 3-year warranty and information on hand-manufacture. There is also a black and white Husar sticker present. Kit contains a 25-mm hip belt, made of polyamide. The bag is attached to it by Duraflex Slik Clip buckles, which makes the whole operation comfortable and provides enough durability. Belt itself has ITW Nexus fastex clips.

We tested the coyote brown model. Husar supplies the pack in other colors, such as various camo patterns (Pencott Greenzone, Multicam, A-Tacs FG), ranger green and very fashionable black.

Construction

One thing is important – the Cubby waist pack isn't a waist pack *per se*. It's more of an admin pouch (as the full name suggests) with an option for mounting on a belt. Or, to complicate a little, it's a fanny pack, that can be mounted flat on an equipment vest.

As already mentioned, the bag is made of 500D Cordura and hypalon – a rubberized composite that is soft and durable at the same time. Pouch measures 200 mm length, 100 mm width and is 50 mm high. Weight is equal to 220 g. Front has a small Velcro pouch (50 x 155 mm). Out of the box, manufacturer's patch is attached there. Two hypalon strips allow for backpack/vest mounting.

Pouch also has 4 rubberized loops, useful for carrying small, oblong objects like pens or chemlights. Below, a shock cord is mounted. It's size allows for carry of a 0.5-liter bottle or small items like gloves. Close to it, belt attachment buckles are located. Bottom, front and back has drain holes. YKK zippers are inside-mounted. Not only this looks nice but also helps with keeping the interior dry. Zippers terminate with standard pull-cords which quietens them and helps with operation in cold weather.

Front Pouch

We can see how the pouch looks. But what's inside? The interior is the most interesting part of such equipment. Husar bag has two compartments. The front one, which small and quite flat, and the main one which can accommodate the most of carried gear.

▼ Main compartment can accommodate a lot of smaller items like power bank or a flashlight. As You can see, it can also carry a lot of extra 7.62 × 39 mm ammunition (in this case, for Hellpup rifle)





Cubby Admin Pouch weights 220 g. The front has a velcro panel with the manufacturer's patch.

Elastic band loop resides below

Back has 2 hypalon tabs for MOLLE system mounting and 4 rubberized loops for chemlights.





- 25 mm wide belt is included in the kit. Pouch attaches to the belt with Duraflex Slik Clips. Belt itself is fastened with fastex buckles.
- Sewn-in tab identifying date of manufacture, serial number and a name of the tailor
- Plus model has a Velcro-attached zip for the front compartment





▲ Despite initial problems with organizing the gear, access to large amount of equipment is easy

Front pouch is fastened with a full width Velcro closure. To open it, user has to pull on a hypalon tag placed on the front. The opening is quick and access is very easy. Front pocket is about 25 mm wide and 70 mm deep (measured to the bottom line of Velcro strip). It can accommodate smaller items such as a folding knife, coins, keys or earplugs.

Plus model of the described waist pack has an option of zipper closure instead of just Velcro. Zipper is attached to the Velcro and works quite well but this makes the pocket a bit *fatter*. The upside is 20 mm more space in the compartment. This makes it easier to carry a smartphone with 5,5-inch screen (which does not really want to fit in a normal Velcro fastened compartment). There is however one noticeable downside of such arrangement. The attached zipper closure can catch on the hypalon tag and hinder the opening. It might be a small problem but can get annoying after some time.

Main Compartment

Husar's main compartment seems a bit...strange. Why the front wall elastic bands are vertical and placed in 3 rows? What is the use for this? The

whole design is a bit problematic. The pouch has a full-length zipper which, theoretically, allows for flat opening. However, there are elastic bands preventing this. It seems that this feature was based closely on admin panel. The bands mentioned are very short and keep the front wall almost vertical. Of course, these can be stretched but a re-design would be better. User can utilize the zippers to keep the front wall from opening fully.

Main pouch bottom is covered with a Velcro loop. The inside wall has a small nylon compartment, which opening is limited by yet another elastic band. Unfortunately, the compartment runs the whole width of the bag. This makes it a bit proud of the rear wall. The stitching of the elastic band makes it less useful as well. It works well with bigger, flat objects (like a notepad) but placement of small, cylindrical objects (flashlight) can be annoying. Under weight, the nylon flap protrudes quite a lot and makes organizing items inside challenging.

As mentioned, front wall has 3 vertical elastic bands. Each of these is divided into 3 parts – two narrow at the top and bottom, and a wider one in the middle. Sounds good, doesn't it? Not really. When You start thinking about organizing the items some problems occur. If we place bigger and



▲ Waist pouch Husar Cubby Admin Pouch Plus is delivered in a brown cardboard box with a manufacturer's logo. Outside diameter is 200 x 100 x 50 mm and weight is 220 g

heavier items (like a flashlight) in the top loops, access to the rest of the pouch will be limited. Placing such items in a middle loop creates another issue – due to very limited opening getting items from the bottom loops can be a pain. In fact, the bottom loops are not necessary. Obviously, *Your mileage may vary*, and the interior might work out for you just right. However, I can't shake the impression that the solutions from competing manufacturers work better.

The interior of outside wall has a D-ring for keys, carabiners and such. This is good and I have no negative comments about it.

Capacity


After a lot of thoughts poured into organizing the items comes a surprise. Despite strange interior arrangements, the waist pack has a lot of space inside. And I mean a LOT! Due to how wide and angular it is, user can stuff it with plenty of gear.

In testing, main compartment swallowed (with a good access to each item) the following: few meters of dyneema rope (there was easily place for a lot more), bandage, sterile dressing, bunch of keys, 50 by 10 mm cylindrical box, 20000 mAh power

bank, Convoy S2+ flashlight, hand sanitizer, inhaler, lighter, few blisters of various pills and a retractable tape measure. After some rearrangement, there was still enough place for more rope, bandages, pens, pencils and other small items.

Even stuffed *to the brim*, the bag was still comfortable to wear both on a belt and on a chest rig. When full, it becomes quite solid. This, together with how wide it, reduces the bounciness by quite a margin.

Verdict

Is it worth to buy this? By all means, Yes! Despite the initial problems with the main compartment, Husar Cubby Admin Pouch Plus is a great quality product which can be modified for multiple types of use. Using this waist bag was a pure pleasure. 

Thank You to sprzetmilitarny.pl for making the pouch available for testing

ZipperFox 40 by Wisport





The Polish backpack maker Wisport is known for its unconventional range of products. The company (based in Kobierzyce, Poland) makes two distinctive types of packs. Very classical, almost archetypical models with addition of MOLLE webbing, and innovative ones, quite often far away from what is expected. The subject of this article – ZipperFox – is one of these novelties.



▲ Wisport ZipperFox, due to its features, is quite unconventional. It takes up just the space on the back of the wearer so it is small not to get in the way when sitting or looking up.

▼ Not a lot of character when closed. Lots of webbing shows the military nature of the pack.



Tradition

At the first glance the ZipperFox looks quite normal and resembles its „older brother”, the SilverFox model. The top cover is missing, but the general shape is traditional. Pack has two wide shoulder straps, equipped with quick release buckles. The load-bearing element consists of 25-mm webbing, sewn onto the straps. More webbing, located horizontally, creates a complex system for hydration and comms wiring. The sternum strap is attached by polymer connectors and can be adjusted horizontally and vertically. The fixing point for the hydration mouthpiece, as typical for Wisport packs, is located on the chest strap connectors.

There is one strange feature that can be noticed straight away. The load adjuster straps look like they were randomly attached from a different model. The attachment point for these is only 20 mm above where the shoulders start. This results in a very small adjustment range. Maybe this is enough, but the difference is hard to notice when using this adjustment.

The back of ZipperFox is based on a single slat frame. There is no height adjustment, which is acceptable in 40-liter packs. A detachable hip belt (different than in SilverFox) is soft and noticeably improves the comfort for the user. Every part of this that contacts the body is covered with very fine meshed, dirt-resistant foam. The length of the belt can be adjusted and it has 2 MOLLE cells located on each wing.

The final part of the back is the hydration compartment. It is narrow and the opening is protected by a zip-fastener. The bladder hangs on a loop and the small hole for the tube is protected with a elcro flap.

As is usually the case with military series Wisport products, the MOLLE webbing covers pretty much every flat surface of the main compartment. It is located on the front, top and sides of the backpack. The bottom has two buckled straps for attaching additional equipment. The identification velcro patch also lacks MOLLE. This is where typical solutions end and exotic ones begin.

Innovation

What makes ZipperFox a novelty, is a very long, reversed U-shaped, zip-fastener, running along the top, both front-side edges, and terminating where bottom meets the back. Zipper has 4 sliders, 2 convergent, and two on each end. This configuration offers many possibilities. However, before we get into the pack, two buckled straps have to be released. These are located on the sides of the main compartment and allow for the carrying of extra-long items. These straps also take



FOR PROFESSIONALS



wisport

BIURO@WISPORT.COM.PL
WISPORT.COM.PL



◀ Unbuckling the top compression straps opens 1/3rd of the pack height. This results in good access to most of the content, while the pack maintains its shape.

a substantial strain from the zip fasteners. After unbuckling, the sliders can be moved and the sides of the pack open. This allows for easy access from the sides to the main compartment and, at the same time, reveals the inside surfaces of the sides. This is important, as the right one has twin mesh pockets, protected with double-slider zipper (each pocket can be opened independently).

The left side has an open mesh pocket on the bottom and a MOLLE panel higher up. This panel is attached only at the sides, which creates a convenient „sleeve“, useful for carrying long items (like a comms antennae or a small axe). These kind of items often move around and catch on other things in the pack. This is a very clever solution.

The essential feature of ZipperFox is achieved by the two converged sliders of the main zip-fastener. When placed on the „top“ of the arch, these can be used to open the pack in three stages, each separated by side compression straps. First, the top part (working as a lid) can be opened. After unfastening the first pair of straps, zipper opens up further, revealing about 2/3 of the main compartment. The opening of the second pair of straps, allows the user to open the pack right to where the bottom meets the back. And, surprise, we have a completely flat backpack. Just like a cardboard box.


The inside of the pack offers several features, especially in comparison to the SilverFox model. The back wall is equipped with two pockets. One is a small, nylon pouch with a zipper. It is attached only at the top, which allows for a great access. It swings right onto the contents of the main compartment. The second, nylon pocket is almost full back size and has a twin on the front face. The lid has a zipped, flat mesh pocket.

Full access

While the previous model – SilverFox – was already quite an innovative pack, the new ZipperFox “super-duper” features are even more innovative. The hip belt works well and distributes the load



◀ ZipperFox is equipped with SAS load bearing system with a hip belt. Previous model – SilverFox – lacks this feature



▲ Main compartment opened up to first pair of compression straps. ZipperFox opens in the opposite direction of classic packs.



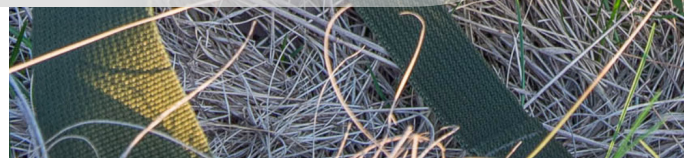
Single, aluminum frame slat



One of the best features – chosen side face can be opened without disturbing the rest.



Rain cover (included) has its place in the bottom.





The lid pouch is made of mesh. This allows for quick identification of carried items.



Nylon pouch attached to the back swings, so can be placed on the pack's contents. This simplifies the access.



Twin nylon pouches, placed on the inside of front and back, can be accessed right under the lid.





▲ Unbuckling all compression straps allows for spreading the pack flat. Small items can be safely stored in the side pouches.

▼ Inside of the left panel is covered with mesh pocket and small MOLLE panel. Its sleeve configuration protects longer items and maintains easy access to them.

for comfort. The pack itself is fabulous. There are so many possibilities to open this pack, that the user will always get to the right equipment in their pack. The interior pockets are great for small items – no more searching for those at the bottom. Let us hope that the accessory pouches will not get in the way of the opening system.


The full-open mode is a side result of openable sides. This is the biggest advantage of this pack. Finally when packing, the user can lay the backpack flat, fill the small pouches and then comfortably arrange the contents of the main compartment. This gives a lot of control over the location of the equipment and allows for instant verification of the packed items. When finished, only two sliders have to be moved to close the pack. If more space is needed extra pouches and larger items can be webbed to the outside.

Verdict

The quality of the pack is very good. ZipperFox is made of Cordura 500 while all buckles are ITW and Duraflex. All zip-fasteners work perfectly (these were produced in Poland to Wisport specifications). There is no way to lock the sliders but until now there were no problems with these opening on their own. The mesh is of very high quality and bar-tacked seams to ensure longevity.

The ZipperFox is extremely convenient to use, carries the weight comfortably and is cheaper than similar packs. If only the main zip-fastener worked as advertised over a long period of time, this product would be one of the best by Wisport. 🇵🇱



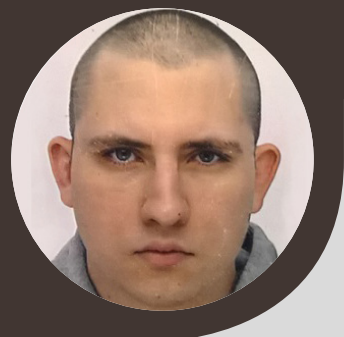


▲ Hydration compartment can be accessed by a straight zipper on the right side. Earlier models had an L-shape zipper. Simplifying this bit allows for fabric reinforcement.



TEST: UF PRO DELTA AcE SWEATER

The UF PRO is a well known on the market Slovenian brand. It is located in Trzin and owned by Uni&Forma Company which has been manufacturing clothing for military formations since 1997. It offers not only uniforms for a military and police service, but also trousers for dynamic shooters and winter clothing for active people. Our redaction has had an opportunity to test the winter variant of the combat shirt Delta AcE Sweater made by UF PRO.



Design

Delta AcE Sweater is a zip-locked pullover sweater. The zipper extends to half of the length of the sweater. To prevent itching, the zip is provided with a tuck under the chin. The sweater is also fitted with a stand-up collar, padded with fleece on the inside.

The sweater is sewn from three kinds of cloth. Front, arms and collar are made of three layer, soft shell laminate with wind and rainproof ePTFE membrane. Delta AcE Sweater is provided with a dual access kangaroo pocket on the belly.

The back and sides of the sweater are made of breathable 37.5™ micro fleece from Cocona® Inc, which releases the excess of heat and moisture. Thanks to that, the sweater dries very quickly.

The sleeves are sewn from G Loft, which protects from the wind and cold. Additionally, it is durable and abrasion resistant. Such a combination of materials prevents the organism from hyperthermia.

Theoretically, the combat shirt is a sweater designed to wear under a ballistic vest. We however, wore it more like a light outerwear. Delta AcE Sweater is a model designed for use in low temperatures and adverse weather conditions such as strong wind, rain or snowfall. The sweater is being sold in three colour variants: grey, black and Multicam.

▼ Cocona® micro fleece on the back and sides is very flexible. It permits a full spectrum of arm movement.

▼ UF PRO Delta AcE Sweater is a winter variant of combat shirt sweater designed for use in low temperatures and adverse weather conditions.





▲ The style of Delta Ace Sweater is neutral enough for it to be used not only while special tasks, but also in casual wear.

► Sleeves are provided with two zip-locked pockets. The bigger one is located on the arm and is fitted with a Velcro belt.

▼ The sweater is pullover and zip-locked. It is fitted with a stand-up collar, padded with fleece on the inside.





▲ Delta AcE Sweater is a model sewn from as much as three kinds of materials, fitted with shoulder pads which make the carrying of a backpack and air circulation easier.



It also provides high thermal comfort while wearing the sweater with backpack, ballistic vest or a plate carrier for an extended period of time.

Both sleeves are provided with two symmetrical pockets, closed with YKK zip-locks. The bigger one is placed on the arm, and is fitted with a velcro belt for patches or a flag. A smaller, flat pocket is located on the forearm and fitted with a drainage hole. The sleeves end with fleece cuffs which are provided with thumb holes, and which can be pulled on to the half of a hand.

Delta AcE Sweater is also provided with sewn-in shoulder pads, by the manufacturer called air/pac®, serving two purposes. First of all, they make the space needed for free air circulation between

the material and the body. Secondly, they serve as the amortization for the weight of a backpack.

A year of usage.

The sweater is very comfortable. I've been using it for a year by now, and I can honestly say that it suits the task perfectly. I've been wearing it on the long walks with a backpack and activities demanding high mobility, such as dynamic shooting. The sweater is best worn with a thermoactive shirt underneath. You do not need anything else while intensive activities, even in low temperatures. Shoulder pads make the free air circulation possible, and prevent the sweater from sticking to the sweaty skin.



◀ The sweater was tested for a year in various conditions – on long walks with a backpack or dynamic shooting where the high movement mobility was necessary.

▼ Sleeves end with a fleece cuffs which can be pulled on to the half of a hand. It is the main drawback of Delta AcE Sweater.




The style of Delta AcE Sweater is neutral enough to be used not only while special tasks, but also in casual wear. The black variant especially can double as casual attire in the city. The design of the pockets makes it difficult to carry too many items [smartphone, flashlight etc]. Of course if someone is stubborn it is possible to attempt to pack them all. But this will deform the shape of the sweater and this is not its designed purpose.

Cocona® micro fleece on the back and sides is very flexible. It allows the full spectrum of arm movement, which was a very pleasant surprise for me, as soon as I wore it for a first time. Unfortunately it has a few drawbacks. On a walk with a backpack, micro fleece works quite

well but if you take the baggage off of your back for a moment, the thin and damp material won't provide any protection from the wind. If this happens, it is good to take a coat from the backpack and cover your back.

Another small issue was the the sleeve cuffs which make rolling up the sleeves impossible and the use of your watch uncomfortable. Besides these two details, the sweater is great.

Summing up, UF PRO Delta AcE Sweater is a perfectly designed and manufactured sweater, made for numerous activities in adverse weather conditions. The high quality of materials and production ensures the long and comfortable usage. 



TACTICAL GARMENTS FROM CHINA



DRAGON TOOTH

Dragon Tooth is a Chinese-based manufacturer of outdoor and tactical clothing who wants to become visible on the international and polish market. We are used to buying Made in China products for some time now, but Dragon Tooth decided to do something a bit different. After few decades of producing items based on other designs, Dragon Tooth designed and made the clothing under their own name. Did this work out?



✍ Karol Batko

Joachim Rażny



Michał Madecki

Paweł Ścibiorek

Remigiusz Wilk

MILMAG received a couple of Dragon Tooth's products for testing. Initially, we were a bit skeptical but it turned out, that well-known materials like Cordura, Coolmax, and YKK were used. Products look well made and attention to detail and user comfort is good.

This review concerns 3 items of clothing and tests were carried in the autumn. First

one was the DT16/CO023 16 B4 GEN II rain jacket, from the Extreme Tactical (designed for moderate temperature) line of clothing. Chinese manufacturer's decided not to use any catch marketing name for their garments. The other two products have similar sounding names – the TS002 thermo active polo shirt and CO001 wind jacket (Mix Tactical line).



◀ Dragon's Tooth products are well made and comfortable. DT16/CO023 16 B4 GENIII jacket is correctly manufactured out of good quality materials

DT16/C023 Jacket

It's important to mention, that this Extreme Tactical DT16/C023 jacket, when compared to products of likes of 8Fields, Texar or Mil-Tec, make a good impression. It's well made and the quality of materials is good. Despite the line name, the jacket is not for extremal conditions. It looks more like an urban or hiking jacket and works well at around plus 15°C (60°F) when it can be worn with just a t-shirt. Splash-proof zippers in the armpit become handy when temperature raises above this. Teflon-covered fabric works very well in rain – jacket repels water efficiently and does not get soaked. We didn't get a chance to test it out in a heavy downpour but it seems that a short, intensive rain would not be a problem. Hood would work well for sure.

The main zipper molded plastic but is not splash proof. This was probably done to improve user comfort – it rides easier. A full length tab is located under the zipper to stop the water.

Cuffs are profiled to protect the wrists and are equipped with decent looking velcro, which does not come undone on its own. This is contrary to similar products from other manufacturers and even Helikon Patriot and Gunfighter jackets.

Deliberate pockets

Jacket has four pockets, each protected with splash-proof YKK zippers. Two of these are quite large (A4 format sized) and located in the shoulder part of the sleeves. Here we can also find two square velcro patches (sized at 10x12 cm).

Other two pockets are deep and voluminous. The right one has two elastic bands which can

▼ Pockets have elastic lines inside. These are ended with hooks which can be used for securing small items or as an additional wind protection when joined at the back



▼ Collar has space for two-layer peaked hood. It works well protecting the head but single layer on the shoulders and back might leak



► Hood is efficient but when stowed away it weighs down on the collar and pulls it down. The only solution is to zip right to the top



be used for carrying a knife or a flashlight. Left pocket has a smaller pouch inside. Ideal for a large smartphone.

Both pockets have elastic line hooks on the bottom. This can be used to either secure items like keys, or to protect against the wind. This is achieved by pulling both hooks out and joining them on the user's back. This cinches the waist and prevents the wind. Bottom of the jacket can also be adjusted – there are two stoppers there.

It's mostly urban

The DT16/CO023 16 B4 GENIII is an urban jacket. Navigating thick branches and other extreme activities might not go very well. The fabric, marked as Invista Cordura, seems delicate and prone to wear. After 72 hours of forest camping, sleeve edges were starting to show some wear. Despite being an urban jacket, it has an interesting liner. It's bright orange and could easily be used for emergency signaling.

Collar hides a deep, two-layer hood with a small cap. Elastic line and 3 stoppers (2 on a side, 1 in the middle) allow for adjustment. It works well when protecting against rain but is quite thick. After the hood is stowed away the collar becomes heavy and pulls to the shoulders. The only way to stand it up is by zipping up right to the chin.

◄ Front pockets of DT16/CO0023 are spacious and deep, while additional accessories help with access



Good, but not perfect

Dragon Tooth created solid product, but it's not devoid of flaws. It's great they used quality materials and paid attention to wearer's comfort while managing to come up with a few interesting solutions. The user needs to be aware that this is a light duty jacket and will work great in the city, at the gun range or when hiking. It's also a good jacket for spring and autumn EDC backpack. It also works well for cold summer nights and small enough to pack into about 1,5 liters of space.

We believe that the Dragon Tooth jacket is an average product and can successfully compete with other, similar garments. It will be even better if Chinese manufacturer will evolve it and correct the flaws.

► Three days of typical camping work resulted in visible wear at the cuffs



▼ DT16/CO023 16 B4 GENIII works well as a protective layer against moderate rains and cold weather



► TS002 pockets are placed in non-standard location and their capacity is limited

TS002 Shirt

TS002 is a typical polo shirt. It does not sound very tactical and it does not look like that either. The casual looks (strange for Extreme Tactical line) are enforced by lack of any velcro and a small number of pockets. But it's not a disadvantage as this product has a lot of positive quality.

The whole shirt is made of patented Invista's Coolmax fabric which is quick drying and conducts excessive heat very well. During 2 hours gym session, Dragon Tooth's product was significantly better than cotton t-shirt's and cheap thermo active garments. Coolmax does not stick to the body like the cheap fabric does. It conducts perspiration away effectively and is well designed cut. This allows for a full range of motion. Fabric coarseness is a bit unpleasant, so is the smell after the shirt dries out. This, however, is typical for all synthetic fabrics.

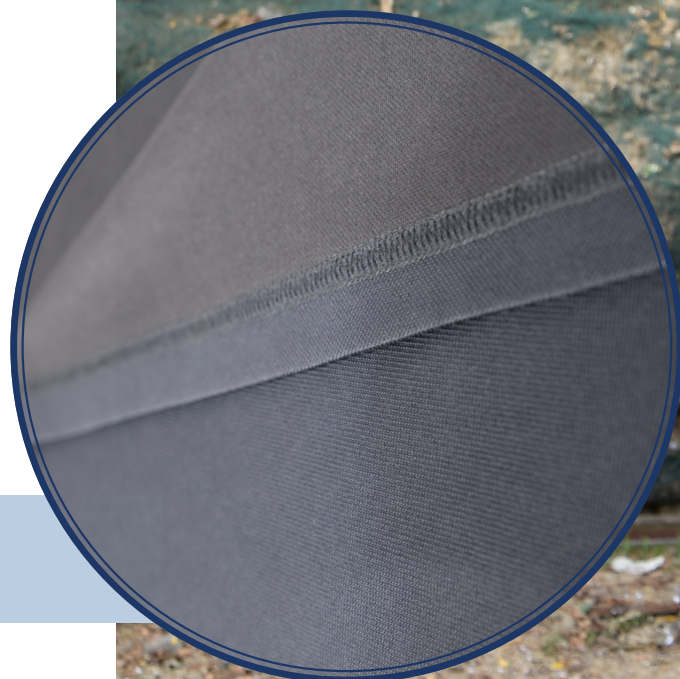
► This garment has a couple of interesting details like covered collar buttons and attachment loop

Three pockets

TS002 model does not have the regular chest pocket. Left side is occupied only by the manufacturer's logo. Pockets are placed on the sleeves but due to location capacities are limited. Each will accommodate some documents, bundle of notes or a very small phone. Right pocket has a designated space for a pen. To make amends to small pocket size, manufacturer decided to use quite smart double tab closure which protects the content very well.

There are two more small details worth mentioning. Left shoulder received a very small pocket just under the seam. It's size make it difficult to come up with any way to use it. There is also a lot more handy Hypalon band located under the placket – it serves great as sunglasses or ID attachment point.

► We verified that shirt is made of Coolmax and provides good ventilation and wicking capabilities



Flexible and solid

Dragon's Tooth TS002 shirt has a lot more positives than negatives. The materials used and workmanship quality put it far away from typical Chinese garments. It looks quite good as well. Dark grey, semi-gloss fabric has a small braid and does not crease easily. Seams are precise and look solid, especially around the collar.

Unfortunately, manufacturer does not inform what other colors are available. The website is just in Chinese, so are the product tags. We managed to make out just the cleaning symbols. This obviously is a very secondary matter but if Dragon Tooth wants to become popular, such things need to be corrected.



▲ It's a bit strange that civilian looking TS002 polo shirt was placed in Dragon's Tooth Extreme Tactical line of clothing

► Hood does not have any regulation system. It's problematic in strong wind.

CO001 Wind Jacket

CO001 was the third tested Dragon's Tooth product. It belongs to Max Tactical line, but similarly to shirt and jacket, tactical is more of a marketing term than description. Described wind jacket has a potential to work nicely under limited types of conditions.

The jacket is well designed and made. The fabric is reinforced with rip-stop and the sides are more permeable. Even without this, jacket breaths effectively. Teflon covered fabric is light and soft. When bundled up, jacket takes no more space than drinks can and is very lightweight. It can be effortlessly carried, even in a small backpack. Worth noting is a bit of sizing discrepancy. Dragon's Tooth XXL is just a bit larger (but not longer) than typical European M size. Perhaps the sizing is adjusted to manufacturer's domestic market?

Wind – go, rain – no go

Jacket works brilliantly for biking in various conditions – it protects from wind very efficiently. Tests were carried out between spring and summer, but with a decent fleece, CO001 could be used even in October. Important thing – manufacturer does not specify this garment as waterproof.

Indeed, CO001 does not like rain. Small, initial droplets shake away nicely but fabric under tension (even from wind) lets rain through very quickly. This can be an interesting product for sailors. The jacket would work well in the sunny and windy weather against small water splashes.

Construction

Jacket has a YKK zipper and is protected at the top by a small tab that prevents it from zipping into user's chin or facial hair. The zipper itself is quite undersized and seems not robust. On the other hand, even small zip catches on fabric quite often so a bigger one would do it more.

► Wind jacket's fabric is soft and light while rip-stop provides enough strength





▲ Dragon's Tooth CO001 wind jacket belongs to Mix Tactical line. As the jacket and the shirt, it's not really tactical

► When rolled up, the jackets fits inside the attached pouch. If folded neatly, it takes space of a wallet or a guidebook.



Bottom of the jacket has an elastic line for cinching. Unfortunately, there is no such a benefit in the hood. It only has a sewn-in elastic which does not hold the hood at all. The only help is to put it over the peaked cap.

Hood itself can be placed inside the collar. Collar velcros' are a nice touch – they have a less aggressive hook part but still work as prescribed.


Sleeves can be cinched and it works well. Dragons Tooth's patch is included with the jacket and can be placed on either sleeve.

CO001 had 4 huge pockets. Two outside and 2 inside. Right exterior pocket has a small plastic carabiner with a cylindrical pouch attached. This can be used for carrying items susceptible to rain. Interestingly, the whole jacket can be bundled into it as well.

▼ Jacket's fabric initially stops water but starts absorbing it very soon. This makes the CO001 not so universal



Limited use

CO001 will work great as a dedicated wind jacket. Small size and weight make it very easy to pack and carry around so we can have it all the time. Unfortunately, it does not protect against water and the hood is far from perfect. It has a very limited use and will not work as a multi-function jacket. 

▲ Right pocket's pouch helps to protect carried items from the rain. The jacket itself is not water resistant.



SELF DEFENSE



PART 1

When we hear *self defense*, what comes to mind is a fight for safety of us, our family or our possessions. To expand this simple *definition* a bit more, self defense is an entirety of available means and techniques used for the above mentions and ensuring our own safety.

Nowadays, there is *breakneck* amount of self defense equipment and techniques available. Why *breakneck*? Because most of those will cause more harm then good to the defending person.





 Bogusław Dawiec
 Bogusław Dawiec
Paweł Ścibiorek

With this short foreword, I would like to start a series of articles concerning widely conceived self defense. These texts will not only touch upon hand to hand techniques involved, but will also describe a whole variety of procedures that may come in handy under threat. What's worth lugging around as EDC? Which combat course will be worth the money and time spent? How to avoid and prevent dangerous situations? When giving away Your wallet is the best course of action? I will try to answer these and other questions in the coming series of articles.

Bit of laws and regulations

As I'm based in Poland, the self defense limitations derive mostly from regulations typical for my country. It is important, before planning any self defense activities, to study the law carefully and tailor our defense strategy accordingly. Quite often, line between self defense and lawless attack is very thin. This will vary, depending on the location You live in but please bear this in mind all the time.

Practical approach

When the law is known, one can start analysis of how to defend themselves and how to *be ready*. Well prepared person will be aware of the threats, can behave in high risk situations and most likely will not panic. This person should also posses a rudimentary knowledge and skills of hand to hand combat. This skills however, are not the most important. It is necessary to familiarize with said techniques and their utilization in certain situations. The hand to hand training and my experience in it will be presented in a different article.

► One never knows what might happen in the urban jungle. Reacting is a matter of training.





▲ This is the worst outcome of the robbery. Not only we loose our belonging but our health as well

An attack

Below, I would like to present real possibilities of dealing with a simplest threatening situation – a robbery. When the assailant(s) want our phone, wallet or watch, the amount of possible responses is very limited. We can act in the following way:

- Start a fight
- Try to run
- Negotiate and try to convince that we don't have anything
- Just give in and hand stuff over

Giving in

Why do we start with the most unpleasant solution? Because I believe it is the safest. We just give away our belongings. It sounds *painful*, doesn't it? With the smartphone, we loose all the contacts, notes and schedules. Giving away the wallet will result in loss of money, important documents (ID's, driving license), credit cards and various other bits (membership cards, valuable photos, loyalty cards etc.)

Indeed, this solution can be mentally painful. How to minimize this? Simple – prepare a dummy wallet. It does not matter much how it looks, it's suppose to be a sort of a bait. Carry it in an accessible place and fill it with unimportant cards, old (cancelled) documents. Top it up with some notes as well to make it look tempting.

Additionally, think about smaller coin purse. It can



▼ Two dummy wallets ready for handing out – small coin purse and the other, with worthless cards inside

▲ The safest way is to give into the demands and hand the wallet to the attacker.

SELF DEFENSE



come in handy. Attacker asks for a wallet and expects *one item*. When we give him two, he might believe that we are giving away all we have. Similar premise can be use with phones. In certain situations, having two phones will be better. Just hand over the *dummy* one (but make sure it's works OK). Unfortunately, there is no similar solution for the watch.

Another important aspect is the rising popularity of various bags and *fanny packs*. Many people fill this up to the brim as carrying stuff in the pockets is uncomfortable. This makes the bags very easy to loose in a robbery situation. Attacker will most likely target something visible, full and accessible. This must be taken into considerations when we are deciding our EDC. In everyday situation, during daylight hours, these bags are quite safe. One thing to note – any type of a bag is and easy pray for a pick pocket. Getting stuff out of a fanny pack is simpler that out of the pockets.

If You are planning an eventful night out try to



▲ No point hanging about after giving the dummy wallet away. Walk briskly and report the incident to the Police

minimize the carried things and prepare some *dummy sets*. If someone wants to rob us don't negotiate, act surprised and just hand over the false items. It is important to keep saying that we don't want trouble, that our well being is more important than the belongings etc. This will help with getting away in one piece.

Negotiations


Another solution for a robbery can be the negotiations – trying to explain that we do not have what the attacker wants. Bear in mind that this will most likely irritate the assailant and he can carry out his threats more likely. Negotiations can't be carried out as a sole solution to the situation. These always have to serve as a preparation stage other self defense steps.

When we explain that we don't have anything we can search our pockets and locate items that can be helpful (e.g. pepper spray). At the same time, we gain time to assess the attackers, their numbers,

equipment and possible escape routes.

In this case, negotiations are an *opening* for two other solutions. One of those is an escape. We need to put it at a distance to the attacker (e.g. push him away). This can give us a chance to run away in a predetermined direction. It's very important to judge if we will be able to escape successfully as quite often this will entail a few hundred meters run.

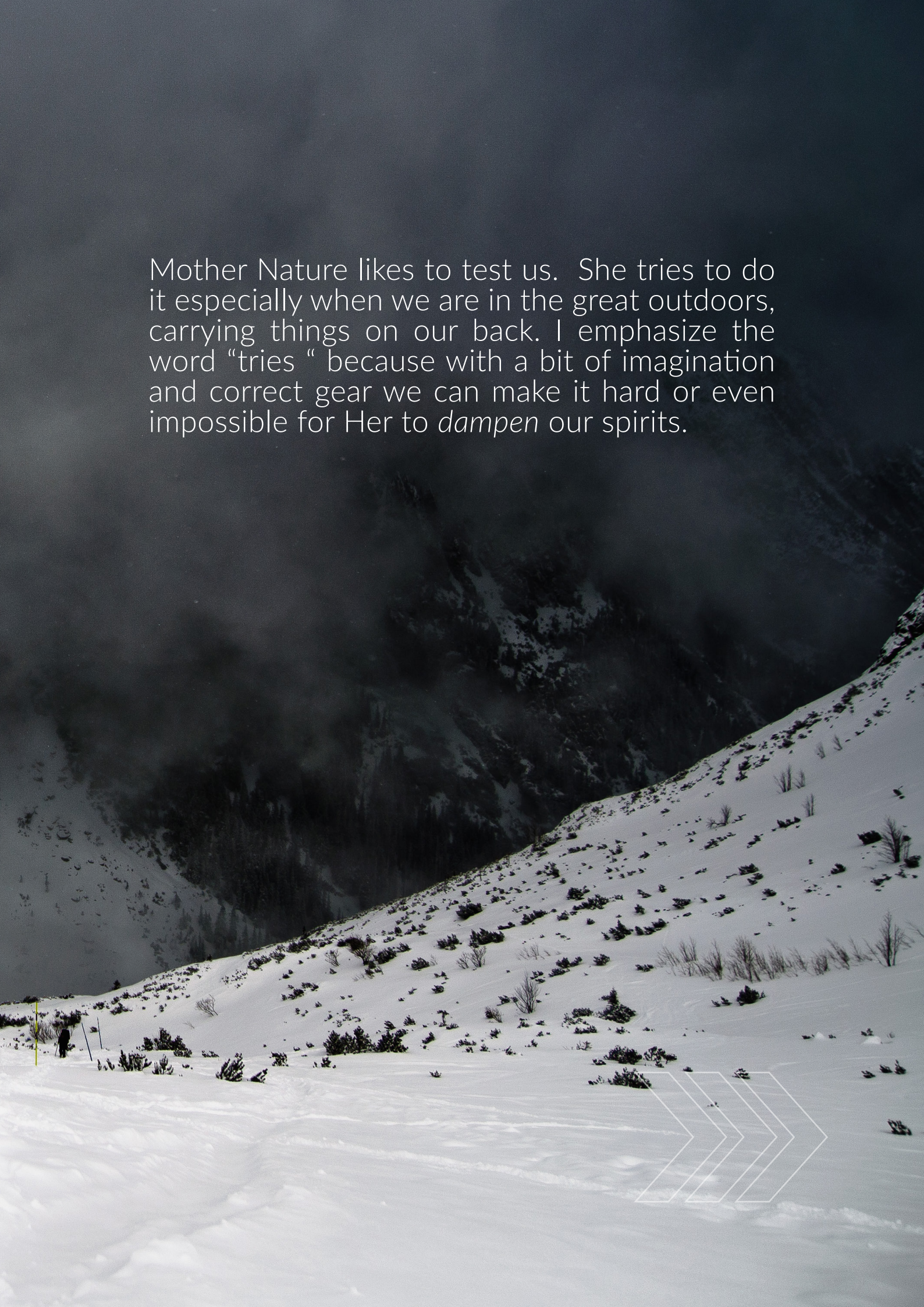
Second solution is to fight. In this case the negotiations will allow us to surprise the attacked with our skills or equipment.

It doesn't matter which course of action we choose. Everything must be well trained. We need to have a whole situation imagined and planned well before and playing in our head when the attack comes. It's good to develop a keyword – *primer* – of sorts, that when spoken will push us into acting without any hesitation. This will be one of the topics covered in the next part. 

Equipment protection in wet conditions



Mother Nature likes to test us. She tries to do it especially when we are in the great outdoors, carrying things on our back. I emphasize the word “tries “ because with a bit of imagination and correct gear we can make it hard or even impossible for Her to *dampen* our spirits.





✍ Miłosz Grabski

📷 Miłosz Grabski

Before we start protecting our gear, we need to think about when and what we are doing. Different steps must be taken when going for a light trekking in the hills where the worst that can happen is a solid downpour. More serious measures must be considered for something like a canoeing excursion.

Dry sack

Despite the differences, there is one common thing that will protect our belongings from water. It is a sealable dry bag - completely waterproof and usually protected with a roll-top closure. It can be heavy

but it is my favorite item for wet conditions load carrying. The sack goes empty into the backpack first, then I pack my belongings. Care must be taken when packing sharp, pointy objects to prevent damage to the fabric. The best way to prevent this is to simply roll these objects in soft clothing.

What and how to pack

Before we decide on using a dry sack for protection, it is important to think about what goes into it and how do we expect the water to affect us. Let's say we are going for a mountain stroll and heavy rain is coming. When it happens, the first thing we will want is our jacket and gaiters. So, do not put those into the dry sack. Why? When the rain is falling, the last thing we want to do is open the sack and let the rain into our well protected, dry storage. It is better to place those items in an auxiliary pocket or outside compartment. Similarly, avoid placing food into the sack. Hunger can strike anytime (especially during a hike) and food is usually packed in waterproof bags anyway. Think about this when packing - some items can and will get wet but this will allow for other gear to remain dry.

▼ One of the solutions for protecting our gear is to utilize a dry sack, which is place inside the backpack



Tactical, outdoor and security gear



SAG

COMBAT PHILOSOPHY



www.sagear.eu

sagear@sagear.eu



▲ Dry sacks have various sizes and are usually secured by a roll-top. Mass and susceptibility to damage are the main disadvantages

Fabric and slipcover

If we decide not to use the dry sack, think about the fabric of the backpack itself. Laminated Cordura type of material is generally waterproof. Even though this fabric will not let water through, the seams, zippers and other perforations will. If complete waterproofing of the pack is important, consider using an additional slipcover. These come in a variety of sizes, colors and prices. But remember - these covers protect only the majority of the pack. The back facing side remains unprotected. Slipcovers are usually lightweight but also not very durable. Rough handling, branches and rocks can easily damage those. This is the main reason I do not like this type of cover.

Drying

I will conclude with a personal story. I recently visited a mountain lodge. The backpack was wet on the outside and I left it in this damp condition for the night. Even though water did not get inside while raining, the dampness seeped through into one of the compartments and in the morning I found my jacket soaking wet. Conclusions? Always try and unpack and air equipment out whenever conditions allow us to do so.

▼ Anything that must be put on in case of rain should not be placed in the dry sack. Put things like jacket and gaiters in an auxiliary pocket or outside compartment





▲ A backpack has limited space. It is thus wise to sacrifice some space for equipment that can get wet. It makes keeping the rest of the pack dry much easier

▼ When deciding on a dry sack, think about the backpack fabric itself. Sometimes it is not necessary to use additional protection



Good luck
on the trail and
everlasting dryness
in the backpack!









STAY ALERT FOR THE NEXT ISSUE