



Zakłady **Mechaniczne** Tarnów

**MODERNITY FOR DEFENSE**



Zakłady Mechaniczne Tarnów SA continuously execute industrial activities since 1917, which makes the company one of the oldest enterprises in Tarnów.

Zakłady Mechaniczne Tarnów's showcase is a wide range of armament and military equipment: air defence systems, small arms and mortars. The training systems also play a particular role in our offer. Moreover, the company provides cooperation services including plastic working, electroplating and heat treatment, chemical technologies and machining.

The company is able to offer such a wide range of products through constant focus on the research, development and products innovation. Expansion of design and research facilities and improving the qualifications of the crew allow the evolution towards the engineering company.

Established R&D Centre has the ability to create innovative defence products for the military and uniformed services and provides strengthen company's position among the leaders of Polish defense industry also developing the sales in foreign markets.

All companies and institutions interested in the development of technologies for the defence needs are welcome to cooperate with us. We also invite civil market business partners for cooperation.



**Zakłady Mechaniczne Tarnów**







# Sniper Rifles

Zakłady Mechaniczne Tarnów is a manufacturer of modern sniper rifles - specialized design created after the year 2000, used for precision shooting for large distances. The rifles produced in Tarnow are adopted by the Polish Armed Forces and proven during the mission by snipers in the toughest conditions.

Zakłady Mechaniczne Tarnów offers a wide range of bolt-action sniper rifles of the following calibers: 7.62 mm (.308 Winchester), 8.6 mm (.338 Lapua Magnum) and 12.7 mm (.50 BMG). The weapons are mainly used by military and uniformed services. Selected models are also available in training - sporting and hunting - sporting version.

All produced in Tarnow sniper rifles are designed in bull-pup design and equipped with free-floating barrels, which distinguishes them among other classic rifle designs.

A characteristic feature of the bull-pup design is the location of the magazine and the trigger unit behind the grip. This results in a high compactness of the rifle and a better balance. The weapon is equipped with much longer barrel with the same overall length. The bull-pup allows for reducing the muzzle rise during action which is to achieve a higher accuracy. The center of the weapon gravity is located within the pistol grip, which makes the rifle easier to maneuver.



## **.308 ZMT HS Hunting and Sporting Rifle**

The .308 ZMT HS bolt-action sniper rifle is fed by a .308 Winchester ammunition and it's a special construction for civilian market. This rifle model is designed for hunters and sport shooters specializing in precision shooting for large distances. The rifle meets all the requirements related to the usage of weapons on Polish and European civilian market.

.308 ZMT HS is equipped with a Picatinny rail, which allows various bipod mount possibility. It is produced in the several buttstock solutions, optionally may also be equipped with a muzzle device.



## **BOR-7.62 Sniper Rifle**

The BOR-7.62 bolt-action sniper rifle is fed by 7.62x51mm NATO (.308 Winchester) cartridge and is used to engage living and lightly armored targets up to 1200 meters. The rifle is equipped with an integral Picatinny rail for optical sight, an forend rail system for night vision device and other accessories. The BOR-7.62 standard accessories are an effective muzzle brake, a folding bipod and a rear support.







## ALEX-338 Sniper Rifle

The Alex-338 bolt-action sniper rifle is fed by a 8.6 x 70 mm (.338 Lapua Magnum) ammunition and used for precision shooting to point targets and to lightly armored targets at a distance of 2000 meters. High energy-caliber 8.6 mm cartridge provides a very long effective range of fire, accuracy and power of destruction, while keeping the minimum weight of a rifle.

## WKW TOR-12.7 Sniper Rifle

The WKW TOR-12.7 bolt-action long-range anti-materiel rifle is fed by a 12.7x99 mm NATO (.50 BMG) cartridge. The rifle is designed for use against military equipment (stationed enemy aircraft, small watercraft, communications equipment, radar equipment, crew served weapons and similar targets). The WKW TOR-12.7 rifle is being able to precisely target and disable enemy assets from long range over 2200 meters. The WKW TOR-12.7 rifle also can be used for the counter-sniper tactics to eliminate the threat caused by an enemy sniper, especially in military operations other than war.



### Bull-pup Rifle Features:

- Higher compactness
- Shorter length
- Longer barrel
- Higher accuracy
- Better balance
- Lower weight

TECHNICAL DATA	BOR-7.62/.308 ZMT HS	Alex-338	WKW TOR-12,7
Caliber	.308 Winchester (7.62x51 mm NATO)	.338 Lapua Magnum (8.6x70 mm)	.50 BMG (12.7x99 mm NATO)
Range	1000 - 1600 m	1500 - 2000 m	1700 - 2200 m
Length	980 mm	985 mm	1350 mm
Overall length	660 mm	660 mm	880 mm
Weight	5,7 kg	6,1 kg	15,8 kg
Magazine	10 rounds/5 rounds	5 rounds	7 rounds
Action	bolt-action	bolt-action	bolt-action







# Machine Guns

Zakłady Mechaniczne Tarnów is a long-time proven supplier of machine guns for the Polish Armed Forces and other armies. Almost all of the Polish Army combat vehicles are armed with our weapons, along with the recent Rosomak 8x8 APC. Zakłady Mechaniczne Tarnów machine guns are fed by the NATO standard ammunition. The weapons were combat proven during the Polish operations in Iraq and Afghanistan.

## UKM-2000 General-Purpose Machine Gun

The General-Purpose Machine Gun UKM-2000 is fed by 7.62 x 51 mm NATO ammunition fixed in a NATO standard M13 disintegrating linked belt. The machine gun is intended for fighting manpower, firing assets and technical equipment in each terrain and in any of the meteorological day and night conditions. UKM-2000 is offered in two versions - infantry and coaxial.

The UKM-2000C version is a machine gun with solenoid, longer and heavier barrel which ensures a greater range and longer shooting.



The latest version of the infantry UKM-2000P GPMG is the ZMT's response to the proposals submitted by the soldiers who have been using the UKM-2000P during combat missions.

Changes include introducing a new, folding telescopic buttstock with a cheek piece and rear support, integral Picatinny rail and a three-rail forend system on the gas cylinder tube to improve the weapon ergonomics and reliability.

The UKM-2000P is equipped with a new bipod and ergonomic pistol grip and a new cocking handle and safety selector as well as an improved tactical sling and a 100-round soft ammunition bag.

Additionally, shell extractor and ammunition button had been modified and the breech-block covers latch was added to keep it in the open position. The Modified UKM-2000 may be equipped with a shorter 440 mm barrel with an effective flash hider.







## WKM-Bm /NSW Utios Heavy Machine Gun

The WKM-Bm Heavy Machine Gun is fed by 12.7x99mm NATO (.50 BMG) cartridge from right-hand side. It is an automatic weapon intended to combat enemy manpower hidden behind the light shields, light armored ground targets and the low flying airborne targets. The NSW-UTIOS Heavy Machine Gun is a version of the WKM-Bm adapted for 12.7x108 mm ammunition.

## WLKM-12.7 Multi-Barrel Machine Gun

The WLKM-12.7 Multi-Barrel Machine Gun is an externally driven electric-powered Gatling-style gun fed by 12.7x99 mm NATO (.50 BMG) ammunition fixed in a NATO standard M9 disintegrating linked belt. Applying four rotating barrels has achieved a huge rate of fire at the level of 3600 rounds per minute.

The WLKM-12.7 is intended to combat manpower, light armored ground targets and airborne targets. The Multi-Barrel Machine Gun may be used as: on-board shooting equipment in helicopter door or window, remote controlled weapon systems equipment, permanent under-fuselage armament, gun pod equipment, drone armament and land vehicles, boats, stationary and portable fire assets armament.



## Mounts

The NSW Utios and WKM-Bm Heavy Machine Gun may be fitted on various mounts: pedestal, tank mount, turntable on vehicle hatch, universal tripod and terrestrial tripod. Depending on the sight equipment used associated with the mount, machine guns may be used in different environmental and lighting conditions.



TECHNICAL DATA	UKM-2000P	UKM-2000C	NSW-UTIOS	WKM-Bm	WLKM-12,7
<b>Caliber</b>	7,62 mm x 51 NATO	7,62 mm x 51 NATO	12,7 mm x 108	.50 BMG (12.7x99 mm NATO)	.50 BMG (12.7x99 mm NATO)
<b>Range</b>	1 600 m	2 000 m	2 200 m	2 200 m	2 200 m
<b>Length</b>	1 203 mm	1 098 mm	1 560 mm	1 560 mm	1 300 mm
<b>Barrel length</b>	547 mm	636 mm	1 100 mm	1 100 mm	900 mm
<b>Weight</b>	8.4 kg	10.7 kg	25 kg	25 kg	50 kg
<b>Ammunition box capacity</b>	100/200 rounds	250 rounds	50 rounds	50 rounds	-
<b>Rate of fire</b>	700-850 rpm	700-850 rpm	700-800 rpm	700-800 rpm	3600 rpm







# Grenade Launchers and Mortars

Zakłady Mechaniczne Tarnów manufactures not only machine guns but other light support weapons such as a 40 mm single shot and multi-shot grenade launchers and a 60 mm light mortars. The majority of the support weapons are adopted by the Polish Armed Forces, including Special Forces.

## RGP-40 Multi-Shot Grenade Launcher

The RGP-40 Multi-Shot Grenade Launcher is an individual semi-automatic six-shot weapon designed for fighting and disabling of manpower, destruction of technical equipment, buildings, fire means, light armoured vehicles and for creating a smokescreen. The RGP-40 is chambered for 40x46 mm NATO low-velocity grenades of Polish origin or foreign.

The RGP-40 is equipped with a spring-driven revolver-style cylinder containing six chambers. The cylinder is 40 mm long to fit a wide range of 40x46 mm NATO grenades including special-purpose such as tear gas canisters and less-lethal impact rounds. The grenade launcher is fully optimized to the right or left-handed shooters.

The RGP-40 is equipped with a telescoping stock with a multistage length adjustment and Picatinny rail for red-dot sight (it can be also equipped with an iron sights). The additional three Picatinny rails for mounting additional equipment are located on the barrel shield.



## Single-shot Grenade Launchers

40 mm Single-shot Grenade Launchers manufactured in Tarnów are offered in two variants: the underbarrel Pallad and GP-40 and the shoulder-fired stand-alone Pallad-D and GS-40. All of them are designed for fighting manpower and light armoured vehicles.

The Pallad and Pallad-D grenade launchers are chambered to the Polish-made 40x47 mm low velocity grenades while the GP-40 and GS-40 grenade launchers are fed by a 40x46 mm NATO ammunition Polish origin (the SBAO-40 system) or foreign.

The Pallad and GP-40 grenade launchers are designed to quick attach to the M1988 Tantal, M1996 Beryl and AKM assault rifle. The stand-alone Pallad-D and GS-40 grenade launchers are equipped with a folding stock fitted with rubber recoil pad.



TECHNICAL DATA	Pallad	Pallad-D	GP-40	GS-40	RGP-40
Caliber	40 mm x 47	40 mm x 47	40 mm x 46 NATO	40 mm x 46 NATO	40 mm x 46 NATO
Range	430 m	430 m	400 m	400 m	400/800 m
Length	324 mm	395/670 mm	335 mm	395/670 mm	850 mm
Barrel length	264 mm	264 mm	264 mm	264 mm	250 mm
Weight	1.25 kg	2.30 kg	1.32 kg	2.45 kg	6.5 kg
Magazine	1	1	1	1	6 rounds (cylinder)
Muzzle velocity	78 m/s	78 m/s	76 m/s	76 m/s	78 m/s
Action	single-shot	single-shot	single-shot	single-shot	semi-automatic





## LM-60 D Light Mortar

The LM-60 D Light Mortar is designed for light infantry, air assault and paratroopers units. The 60 mm mortar is effective against manpower and enemy fire means.

The LM-60 D mortar is easy to carry and maintain and is equipped with control threading mechanism protection. The weapon optional equipment is the CM-60 mortar optical sight which allows for easy targeting and quickly firing.



## LM-60 K Commando Mortar

The LM-60 K Commando Mortar is designed for special forces. The 60 mm mortar equipped with a simple sight can be used to effective engage targets up to 1300 meters.

The LM-60 K is hand held weapon aimed by eye for direct or indirect fire at very short ranges. The mortar is equipped with breech-block for fixed or free firing pin fire mode. The LM-60K is easy to maintain.



### TECHNICAL DATA

	LM-60D	LM-60K
Range	70-2330 m	67-1300 m
Caliber	60 mm	60 mm
Rate of fire	25 rpm	25 rpm
Weight	19.3 kg	7.8 kg
Crew	3	1(2)
Action	single-shot	single-shot







# Remote Weapon Systems

Zakłady Mechaniczne Tarnów is a manufacturer of remote controlled weapon systems, which have many applications in the Armed Forces. Systems are characterized by high efficiency and accuracy in a variety of conditions because of high levels of automation. These systems are easy-to-use modular constructions, adapted to different types of weapons and mounted on various types of vehicles and objects.

## ZSW-12.7 Remote Controlled Gun Turret

The ZSW-12.7 Remote Controlled Gun Turret supports the .50 BMG (12.7x99 mm) WKM-Bm machine gun (or as an option the WLKM-12.7 multi-barrel machine gun) and it is an effective armament of helicopter (eg. PZL W-3PL Głuszec). It is designed to destroy light armored vehicles and posts, aircraft and helicopters at the airports, radars, technical equipment as well as manpower.

The ZSW-12.7 turret provides the accurate and effective close air support of ground units. The turret operates with helicopter fire control system. The ZSW-12.7 fast slew rates in elevation and azimuth corresponding with the wide range of firing angles allow to carry on the accurate fire on the distance up to 2000 m.



## LZS-12.7 Gun Pod

The LZS-12.7 Gun Pod is a detachable pod mounted externally on the typical pylons (BD3-55M) of aircraft and helicopters containing the .50 BMG (12.7x99 mm) WKM-Bm or WLKM-12.7 multi-barrel machine gun. It is designed to fight air and ground targets with preset fire bursts.

The LZS-12.7 is reusable weapon system suspended on the outer racks and rigidly connected with the helicopter. The main features of the Gun Pod are: outside ejecting the cartridge cases and links, automatic calculation of the remaining ammunition.



TECHNICAL DATA	ZSW-12,7	LZS-12,7
Weapon	WKM-Bm	WKM-Bm
Caliber	12.7 x 99 mm NATO	12,7 mm x 99 NATO
Dimensions	1640 x 775 x 470 mm	2 515 x 555 x 545 mm
Weight	135 kg	180 kg
Ammunition volume	320 rounds	250 rounds
Feeding and reloading	electrical	electrical/pneumatic



## ZSMU-1276 Remote Controlled Weapon Station

The ZSMU-1276 Remote Controlled Weapon Station is designed to mount on a variety of vehicle platforms, vessels and stationary objects. The RWCS ZMO-1 integrated sensor unit includes a daylight video camera, a thermal imager for night operations and a laser rangefinder. The ZSMU-1276 enables to destroy lightly armored ground targets and low-flying aircraft during the day and night conditions.

The ZSMU-1276 provides the one-man crew with the ability to acquire and engage targets while inside a vehicle, protected by its armor. The installation of the RWCS does not require any significant changes in the structure of the vehicle or object. The ZSMU-12.7 have the ability to work in safe mode (with no electric supply) with manual guidance of machine gun and trigger service.

### ZSMU-1267 is available in the following versions:

- A3 armed with 7,62 mm UKM 2000C convertible into 12,7 mm WKM-Bm,
- A4 with possibility of interchangeably use 7,62 mm UKM 2000C machine gun, 12,7 mm WKM-Bm machine gun or 40 mm grenade machine gun, system is equipped with sight axis line stabilization system and videotracker,
- A5 with a dual armament, main armament – 7,62 mm UKM 2000C machine gun coupled with 12,7 mm WKM-Bm machine gun, which can be replaced by 12,7 mm WKM-Bm machine gun, 40 mm grenade machine gun or another 7,62 mm UKM 2000C machine gun, system is equipped with sight axis line stabilization system and videotracker.

Changing of the weapon takes only a few minutes. The 81 mm smoke grenade launchers are offered as an optional equipment.



TECHNICAL DATA	ZSMU-1276 A3/A4	ZSMU-1276 A3/A4	ZSMU-1276 A4
Weapon	WKM-Bm	UKM-2000C	grenade machine gun
Caliber	12,7 mm x 99 NATO	7,62 mm x 51 NATO	40 mm x 53 NATO
Range	2 200 m	2 000 m	2 200 m
Weight	< 240 kg	< 240 kg	< 240 kg
Ammunition volume	100-150 rounds	250-500 rounds	32 grenades
Feeding and reloading	electrical/manual	electrical/manual	electrical/manual







# Air Defence Systems

For many years Zakłady Mechaniczne Tarnów have provided the Polish Armed Forces with the land and naval air defence artillery and artillery/missile systems. This includes also modernization and modification of war material by fitting it to rapidly changing conditions of modern warfare.

## ZSU-23-4MP Biala Self-Propelled Anti-Air Gun/Missile System

The ZSU-23-4MP Biala is an improved version of the 23 mm ZSU-23-4 Shilka self-propelled anti-aircraft gun. Improvements were achieved on the basis of increased efficiency and enhancement of tracking and navigation modes.

The range and effectiveness in engaging flying targets were amplified as well as the response time had been significantly reduced. Passive system operation lowered the risk of detection while simplified operation procedures enabled to reduce the crew from 4 to 3 members. The ZSU-23-4MP Biala was designed to integrate with air defence command and control system. Target detection range varies from 8 to 10 km while target tracking range comes to 7-8 km.



**Improvements in qualities of the ZSU-23-4MP Biala include:**

- adaptation of undetectable optoelectronic digital fire control system, allows to track targets all day and night,
- providing two double containers for the Grom anti-aircraft missiles, which doubled the range flying targets can be engaged,
- adaptation the new 23 mm ammunition, which enable to increase the range flying and land targets can be engaged,
- elimination of radar and commander and driver active observation sensors,
- significant reduction of thermal emission,
- adaptation of passive thermal tracks is the solution which increases the target tracking range in the conditions of limited visibility,
- providing the high-tech digital communication system, which enables co-operation with an automatic anti-aircraft command system,
- enhancement of moving abilities and range increase.



## ZUR-23-2KG Anti-Aircraft Mobile Gun and Missile System

The ZUR-23-2KG Jodek-G Anti-Aircraft Mobile Gun and Missile System with 23 mm cannons, Gram missiles and traverse and elevation electric drives is designed to fight low flying air targets fighting such as aircraft, helicopters, rocket, airborne troops and light armoured ground targets.

The ZUR-23-2KG system is designed to operate also with an external fire control system. The Jodek-G is equipped with a CP-1 programmable collimator sight with day-night mode and range finder with two operable ballistics or a CKE-2 collimator sight.

The ZUR-23-2KG fires four types of 23 mm ammunition: an Armour-Piercing Incendiary with Tracer (API/BZT), High-Explosive Incendiary with Tracer (HEI/OFZT), Armour-Piercing Discarding Sabot with Tracer (APDS-T) and Frangible Armour-Piercing Discarding Sabot with Tracer (FAPDS-T) as well as the Grom missiles.





## ZU-23-2MR Naval Anti-Aircraft Gun

The ZU-23-2MR Wróbel II naval anti-aircraft gun is designed to mount on a variety of vessels. The ZU-23-2MR enables to destroy air targets with 23 mm cannons. The cannons can be used also to engage light armored naval and ground targets. Overall system length 4.8 m, wide 1.87 m, height 2.23 m and weight 2 500 kg.



## Spare parts

Zakłady Mechaniczne Tarnow is also producer of spare parts for 23 mm anti-aircraft systems:

- Barrel Assembly
- Breech Block Assembly
- Retracting Mechanism
- Back Plate Buffer
- Trigger Mechanism
- Receiver Cover Assembly
- Hinge Pin Assembly
- Recoil Buffer
- Auto Safety Assembly
- Front Stop & Guiding Lip Assembly
- Interlock Gear Assembly
- Feed Lever And Pawls Assembly
- Barrel Lock Assembly
- Barrel Lock
- Receiver Body
- Runner
- Slide



TECHNICAL DATA	ZSU-23-4MP Biała	ZUR-23-2KG Jodek-G	ZU-23-2MR Wróbel II
Weapons	4 x 23 mm cannon 4 x Grom missile launchers	2 x 23 mm cannon 2 x Grom missile launchers	2 x 23 mm cannon
Cannon firing angle	Traverse 360° Elevation -4° to +85°	Traverse 360° Elevation -5°/-3° to +75°	Traverse 360° Elevation -10° to +90°
Cannon rate of fire	400 rpm	400 rpm	400 rpm
Cannon range: maximal vertical/total/ maximal effective to ground targets	1500/2500/2000 m for API i HEI 2000/3000/2500 m for APDS i FAPDS	1500/2500/2000 m for API i HEI 2000/3000/2500 m for APDS i FAPDS	1500/2500/2000 m for API i HEI 2000/3000/2500 m for APDS i FAPDS
AA missile maximal range	5500 m	5500 m	-
Height of the target flight: minimal/maximal	10/3500 m	10/3500 m	-
Missile firing angle	Traverse 360° Elevation 0° to +70°	Traverse 360° Elevation 0° to +70°	-







# Container Systems

Zakłady Mechaniczne Tarnów is a leader in development of mobile container systems designed for military and law enforcement agencies. Manufactured in Tarnów shooting container are in service with the Polish Armed Forces (including Special Forces), the Police and the Custom Agencies.

## LOOK Light Observation-Protective Container

The light observation and defensive container LOOK is designed to secure and protect the soldiers who perform surveillance and protect duties for logistics and operational bases or other relevant strategic facilities such as airfields and airports during war and peace support operations. The LOOK design features the portability of easy transportation.

The LOOK is a small arms fire resistant container equipped with bulletproof windows, a remote-controlled weapon station and multi-sensor surveillance platform.

Tasks performed by the container include: increasing the level of bases protection, effective danger elimination through applied remote-controlled armament, high degree of protection against enemy fire. Air conditioning and a place of rest allow the crew to conduct long-term observation duties in very good conditions.

The LOOK container is equipped with: an observation and control stand for the commander of the guard, an observation and control stand for the guard/shooter, a communication system, bullet-proof windows on three sides, a hatch in the roof for manual operation, a heating system with air conditioning and also an emergency power generator as an option.

## Training Facility 40ft HC Mobile Container Shooting Range

The Mobile Container Shooting Range is a comprehensive training facility used for basic and advanced training as well as maintaining shooting condition with personal weapons for soldiers and officers using multimedia simulator and traditional methods (targets, turntables). The Mobile Container Shooting Range allows for static and dynamic shooting training with single and serial fire using full and hollow rounds with soft core with caliber up to .45 ACP.

The Mobile Container Shooting Range is composed of two 40ft HC containers on standard semitrailers or stabilizing pillars (it is possible to increase the number of containers to five, which gives the possibility of shooting at a distance of 50 m) in the basic version.

Training facility allows for:

- shooting practice with pistols and revolvers caliber up to .45 ACP with single fire as well as machine guns caliber up to 9 mm with single or automatic fire mode at a distance up to 15 m (up to 200 m when multimedia shooting)
- training 30 people in one hour

Additional advantage of the Mobile Container Shooting Range is the ability to provide adequate training base, especially in relation to facilities adapted to the dynamic and situational shooting. It is possible to extend the optical shooting axis up to 50 m thanks to multimedia simulator.

The Mobile Container Shooting Range tooling has many different training options: targets shooting, time shooting, moving targets shooting, precision shooting, shooting to active and neutral targets. It is possible to program and edit private tactical scenarios and combat episodes (digital format videos) or use scenarios stored in the system.

Highly realistic training (eg. shooting at night or in smoky environment) is possible through a combination of multimedia simulator and smooth light adjusting.

In the opinion of users exploiting the Mobile Container Shooting Range, proposed solution fully meets the requirements of a modern shooting training facility, where cost, effectiveness, flexibility, quality and efficiency matter.







## **Zakłady Mechaniczne Tarnów**

Zakłady Mechaniczne Tarnów SA  
ul. Kochanowskiego 30, 33-100 Tarnów,  
phone: 14 630 62 00, fax 14 630 62 04  
[www.zmt.tarnow.pl](http://www.zmt.tarnow.pl)

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