MISTA SP. Z O.O.
SINCE 1991

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MISTA.EU

MISTA

COMPANY HISTORY:
MISTA SP. Z O.O.
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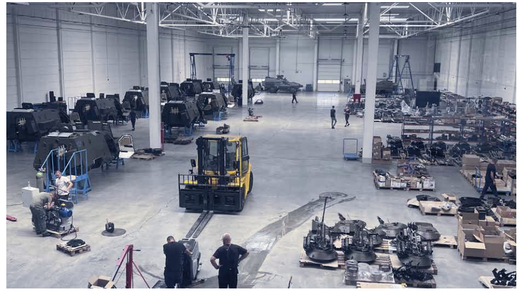
Mista Sp. z o.o. (The Republic of Poland) is a private manufacturer of defence products. Established in 1993 the Company has all the necessary authorizations for development, production, upgrade, repair and trade of arms and military equipment granted by Concession (license).

The Company has established and maintained successful cooperation with a wide range of private and state establishments in Poland, as well as suppliers and manufacturers from EU and NATO countries and obtained strong reputation of reliable business partner.



We invite you to cooperate and familiarize yourself with our offer on the website www.mista.eu

MISTA

PRODUCTION CAPABILITIES

The Company enjoys wide expertise in repair and production of military vehicles, employs qualified engineering and technical staff (25 persons) and working personnel (350 persones), has own Design Bureau with ISO 9001:20215-10 quality management system implemented.

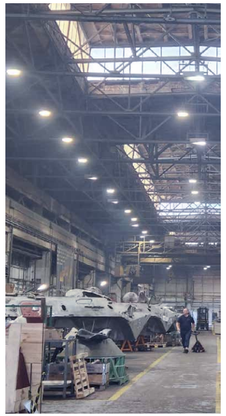
The Company has its own production and testing faclities to ensure the full life cycle of military equipment.

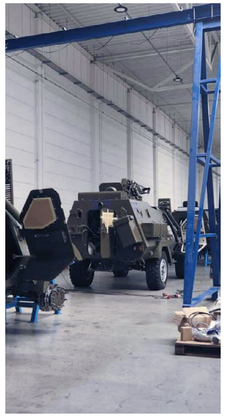
Company 's production facilities constitute 14 000 sq.m. and allow to perform metal equipment treatment, armor welding, repair of hydraulic and pneumatic systems, electrical equipment, painting, etc.

Tecyhnological equipment and main machinery ensure production of military equipment as per NATO standards and allow for providing services on repair, modernization and oproduction of spare parts in compliance with technical requirements and the highest quality standards.

COMPANY SPECIALIZATION

- Development, production of military vehicles and combat modules
- Repair and modernisation of wheeled and tracked military aquipment
- Manufacture and supply of spare parts
- Production of remotely controlled weapon stations with 12,7 mm and 14,5 mm machine guns and 30 mm cannon, supply of spare parts for NATO military equipment





ARMORED PERSONNEL CARRIER «ONCILLA»

4x4 APC ONCILLA - NSN 2355-61-014-3798

APC 4X4 «ONCILLA»

Armored personnel carrier ONCILLA – is a combat proven, adaptable and versatile 4x4 platform designed from the ground up to fulfill complexmissions in any terrain and weather conditions.

Few hundreds vehicles have been delivered to the Ukrainian Defense Forces.

Superior off-road mobility, advanced design for recce and ambush operatioins, low IR signature, survivability and protection.

Compatibility with NATO standards.

TESTED AND PROVED IN REAL COMBAT CONDITIONS.

4x4 APC ONCILLA - NSN 2355-61-014-3798

Remote Control Weapon Station - NSN 2355-61-014-3803

TACTICAL AND TECHNICAL DATA BTR 4X4 «ONCILLA»

PARAMETR	VALUE	
Full weight, kg	9380	
Unladen weight, kg	8620	
Payload, kg	2000	
Combat crew:		
- Crew	3 (commander, driver, gunner)	
- Landing craft	6	
Ballistic / mine protection	According to STANAG level 2 4569	
Overall dimensions, mm:		
- Length / with winch	5687/6162	
- Width	2470	
- Height after hull	2385	
Engine	DEUTZ BF 4M 1013FC	IVECO NEF 4 ENTC
Maximum power, hp	190,5	209,5
Torque , Nm	700	730
Transmission	Allison 1000, automatic (6/1)	
Suspension	Independent, torsional type	
Tires	335/80 R20	
Winch	Electric drive.	
Central tire pressure control system	Maximum permitted force - 8165 kgf automatic	
Maximum speed:		
- On the highway, km/h	110	
- Range, km	620	
Wheelbase, mm	3085	
Wheel width, mm	2026	
Ground clearance, mm	400	
Minimum mileage between overhauls (excluding tires), km	9.3	
Minimum time between overhauls (except tires), km	10000	
Permissible storage period, years	10	

CABIN

DRIVER

COMMANDER

- Perfect situational awareness day and night
- 3 points seat belts
- Height and fore-aft adjustment
- Adjustable headrest

AIR CONDITIONING AND HEATING SYSTEM

- 2- zone air conditioning (driver/commander and soldiers)
- Operating temperature range of the air conditioning system: -35°C down + 55 °C

- Effectiveness at high dust levels of outdoor air dust
- Built-in heating system

REMOTE CONTROL WEAPON STATION

- Automatic tower control
- Thermal imaging system

COMBAT PROVEN SURVIVABILITY SYSTEM

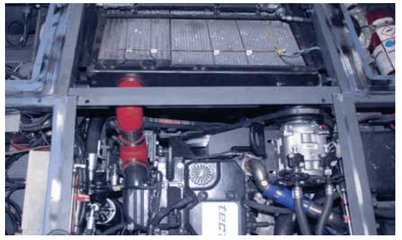
BALLISTIC protection
STANAG 4569, Level 2

BLAST protection
STANAG 4569, Level 2a/2b

With Add-On Armor
–STANAG 4569, Level 3;
(against 7,62x54 mm API rounds)

U-shaped monocoque
specifically designed to
diffuse blast energy

FIRE SUPPRESSION SYSTEM



- Ensures effective fire extinguishing
- Time to activate the Fire Suppression System:
- 3 ms – detection
- 30-120 ms – fire suppression
- Modes - Auto and Manual
- Light and sound warning
- Indicates system malfunctioning

AIR VENTILATION AND AIR FILTERING SYSTEMS

- 2-zone air conditioning (driver/commander and troops)
- Operational Temp Range of AC System: -35°C to +55°C
- Effective at high level dust content in the outside air
- Built-in Heating System
- Separate control of cooling / heating for driver/commander and for crew
- Complies with NATO - AECTP-230 standard

APC 4X4 «ONCILLA-S»

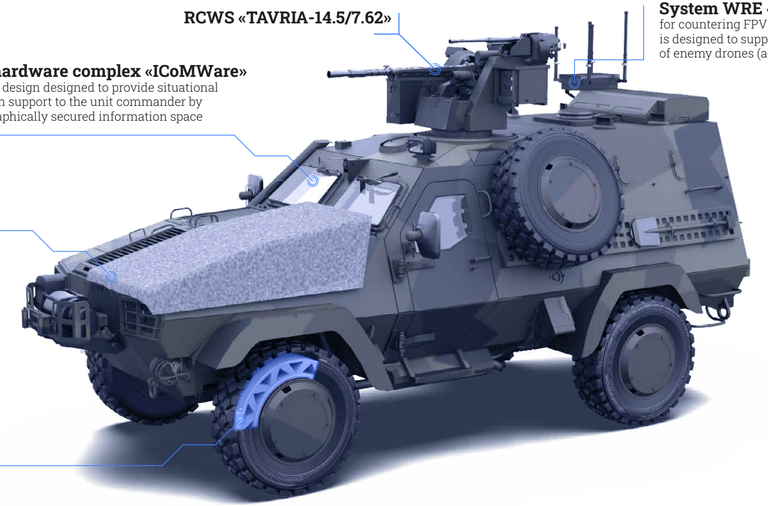
The assault APC 4x4 «ONCILLA-SHTURM» («STURM») was built on the basis of the APC 4x4 «ONCILLA» (NSN 2355-61-014-3798), which is authorized for operation in the Armed Forces of Ukraine and effectively performs combat tasks in units of the Defense Forces of Ukraine.
During the development of the assault version of the armored personnel carrier, the experience gained from the combat use and operation of the APC over the past 7 years was used, and the modern needs and requirements of the units of the Defense Forces of Ukraine in repelling the military aggression of the Russian federation were taken into account.

Thus, in the **APC 4x4 «ONCILLA-SHTURM»,** firepower was increased with the new combat module **«TAVRIA-14.5/7.62»,** and other technical solutions were implemented that increased the level of crew survival and equipment protection, namely the inclusion of the following equipment:

The software and hardware complex «ICoMWare»
based tablet in a protective design designed to provide situational awareness and information support to the unit commander by creating the only cryptographically secured information space

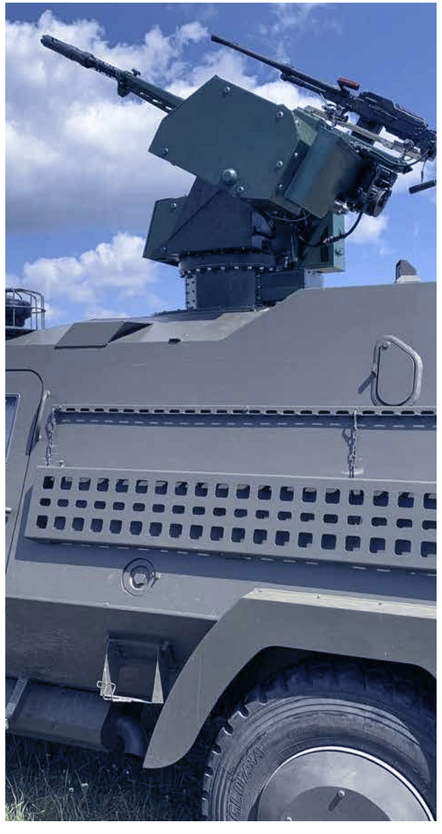
RCWS «TAVRIA-14.5/7.62»

System WRE «AURA»
for countering FPV drone threats, which is designed to suppress control channels of enemy drones (active interference)



Masking cover
to reduce the BTR's infrared radiation and attenuate the vehicles' RF background, making the armored personnel carrier hidden from thermal imaging and radar beacons under cloaking conditions

Runflat tire protection system
that allows you to continue driving if your tires are punctured or completely destroyed



The information and communication system «HERMES-C2» and the software and hardware complex "ICoMWare" based on a tablet (Intel® Core™ i5 1.0 GHz, RAM 8 Gb) in protective execution provides an increase in the level of situational awareness of tactical commanders in terms of the current situation, operability of problem solving, transmission of commands, signals and orders to subordinates and control of their implementation online. Cryptographically protected information exchange is carried out using a Mesh network built from DTC radios.

PARAMETR	VALUE
DTC BLUE 30 radio	
Frequency range of DTC radio station	1.2-1.7 GHz
Pitch of output power change	0.25 dB
Frequency grid jump	125 kHz
Frequency bandwidth	MHz (only in MeshUltra mode)
Radio interference prevention system	IAS interference avoidance system

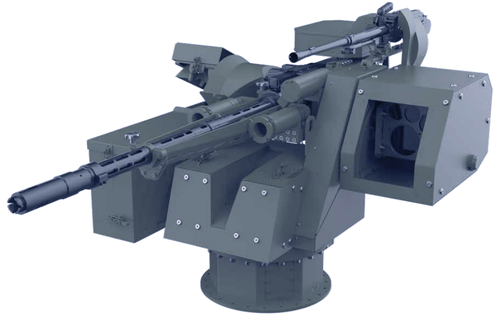
WRE system «AURA» against FPV drone threats. An autonomous device that mounts on vehicles and provides signal suppression at specific control/guidance ranges of low-flying FPV drone-type threats for the safety of moving objects (AFV, BTR, tank, etc.).

PARAMETR	VALUE
Dimensions	400x300x200 мм (without antena equipment)
Module weight, up to	8 kg
Operating ranges, MHz (attenuation/counter-attenuation)	400-500, 700-800, 800-930, 930-1070 MHz
Other ranges (on request of the customer with changes in the design of the device)	2400 and 5800 MHz
Diameter of the "protective umbrella" for guaranteed impact on hazards	250-400 m (depending on terrain and distance of FPV drone control base station)
Power supply	12/24 V (vehicle on-board network)
Protection	IP67, MIL-STD 810
System standby time	Up to 1 min, after power on

THE «TAVRIA-14.5 / 7.62» REMOTE CONTROL WEAPON STATION

The «TAVRIA-14.5 / 7.62» remote control weapon station is remotely controlled and stabilized under the 14.5mm caliber KPVT large-caliber machine gun and can be with for precision firing on both ground and surface targets (BTR/IFV type or boats/motorboats), and against low-flying aerial attack means (low-speed aircraft, helicopters and medium-class BSPs) or enemy infantry concentrations at ranges of up to 2,000m.

Weapons options
Main weapon: 14.5 mm machine gun (KPVT)
Secondary armament: 7.62 mm machine gun
Ammunition: 200 rounds - for the KPVT machine gun
300 rounds - for the PKT machine gun.



PARAMETR	VALUE
Height:	1050 mm
Width:	1140 mm
Length:	2000 mm
Turning radius:	1300 mm
Combat module weight:	400 kg
Weight of module (with weapons and system):	600 kg
Vertical aiming angles:	+70°/ -20°
Horizontal aiming angles:	n × 360°
Turning speed max:	70°/sek
Targeting accuracy:	<0,5mrad
Operating temperature:	-32°C/ +55°C
External environmental conditions:	MIL-STD-810G
Electromagnetic compatibility:	MIL-STD-461G
Protection levels:	STANAG 4569 Level 1

REMOTE CONTROL WEAPON STATION FOR 12,7 MM BROWNING M2 HMG

REMOTE CONTROLED WEAPON STATION BROWNING M2 12,7 B2 KDT-N1

PARAMETR	VALUE
Designation	RCWS BM2 12,7
Module type	Autonomous, closed
Brand of gun	Browning M2 (left)
Caliber	12,7 mm (0,5 in)
Ammunition Supply System	Semi-automatic with suspension of amunition box
Box capacity	100 pcs.
Quantly of ammunition	3 pcs.
Conducting fire	Electrovacuum
Elevation	Angle -5...+60 °C
	speed 34,8°/s
Azimuth	Angle 360°
Sudne grenate	6 pcs/zwp -81 (pd-1m, gd-1m)
Ballistic protection	Level 2 according to stanag 4569
Optoelectronics	Thermal camera 10,3 °
	Day camera wfov 23 °
	Day camera nfov 4,5 °
	Monitor 10 lcd
Power supply	24V
Operating temp	-30...50°C

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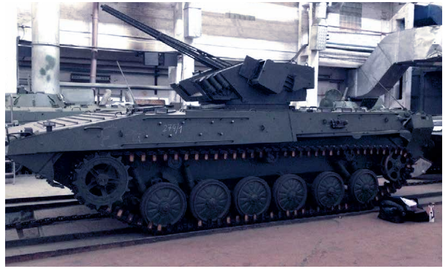
«EUROSICH» REMOTE CONTROL WEAPON STATION

REMOTE CONTROLED WEAPON STATION TACTICAL AND TECHNICAL SPECIFICATIONS

PARAMETR	VALUE
Turret	RCWS – «Eurosich»
Turret purpose	Installation on armored vehicles and use in the modernization of the BMP-1, BTR-70, BTR-80, MTLB
Weight without weapons	1700 kg
Dimensions (with weapon) mm	3600 (L) x 1990 x (W) 870 (H)
Weapon module firing angles	Horizontally - 360° Elevation angle - 40° Descent angle - minus 5°
Cannon	30 mm automatic gun ZTM-1(2A72) and GTS – 30(2A42), M230LF 300 shells (all shells are ready for shooting)
Machine gun	7,62 mm PKT machine gun 2000 cartridges (350 are ready for shooting)
Smoke grenades launcher	Smoke grenade launch system – 902V «Tucha» (6 launchers, 3 by each side)
Weapon stabilization and control system	An intelligent digital weapon control system that combines an optoelectronic module and a weapon stabilization and control system in a single complex, designed to monitor and detect ground targets (armored vehicles, manpower) and air targets (helicopters, unmanned aerial vehicles), their identification, aiming weapons at a target, target acquisition, target marking, target tracking, measuring the distance to the target, working out the armament elevation angles in accordance with the ballistics tables, taking into account the ballistic computer, automatic destruction of targets from the type of weapons selected by the gunner-operator.
Optoelectronic device	Optoelectronic device wich includes: - thermal imaging camera - television camera - laser rangefinder
Workstations	Operator and commander
Emergency mode	Manual mode of weapon station when power is off
Armor of the Turret	Front side- Level 3 and Back side- Level 2, STANAG 4569



MODERNIZATION OF THE BTR-70 TO THE LEVEL OF THE BTR-70DIP

MODERNIZATION OF THE BTR-70 TO THE LEVEL OF THE BTR-70DIP

PURPOSE OF MODERNISATION

The purpose of the upgrade is to extend the service life of the BTR-70 armoured personnel carriers by improving their mobility, combat and repair characteristics, as well as bringing the upgraded vehicles in line with the requirements of modern combat operations based on war experience.

The BTR-70DIP wheeled armoured personnel carrier is an armoured all-wheel drive vehicle designed to transport personnel and provide fire support day and night in all climatic conditions. The vehicle has high dynamic qualities, increased cross-country ability and smooth running when travelling on unpaved roads and off-road, is capable of following tanks, overcoming trenches and water obstacles by fording and swimming.

The hull of the armoured personnel carrier provides protection for the crew, troops and internal equipment against small arms, anti-personnel mines and weapons of mass destruction.

THE BASIC MODERNIZATION OF THE ARMORED PERSONNEL CARRIER BTR-70 TO THE BTR-70DIP LEVEL INCLUDES THE FOLLOWING:

Replacement of the standard Radio Station-123 (R-123)
with the «Lybid K-2RB» (Motorola DM4601) radio station or other radios subject to coordination with the Customer

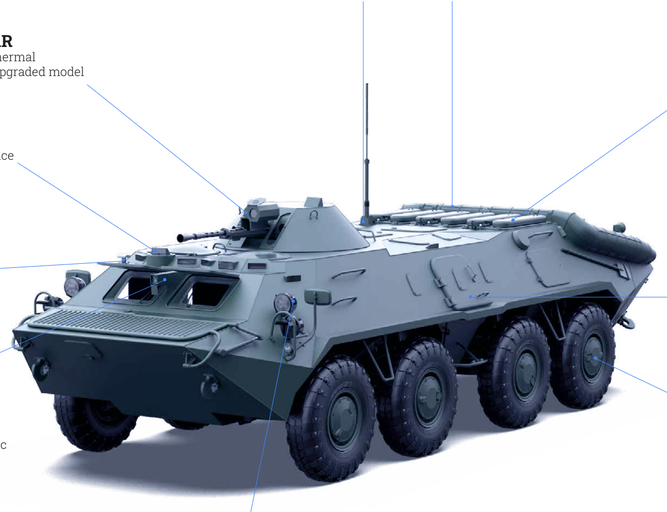
Installation of new cooling systems for the engine,
fuel system, hydraulic system, exhaust system, water-jet drive, steering control, electrical equipment, and driver's instruments

PP-61 LAZAR
Day and night thermal smaging sight upgraded model

TKN-1 MBT
Upgraded commander's observation device

Satellite Navigation
Equipment CH-4215

SPO MBT
Device of supervision and orientation at day and night time for driver-mechanic



Replacement of two standard
Replacement of standard twin gasoline engines with twin modern IVECO diesel engines

Installation of side troop doors
(similar to the BTR-80)

Installation of a IVECO
mechanical transmission (6-speed)

Installation of modern LED
headlights and rearview mirrors

TECHNICAL SPECIFICATIONS BTR-70DIP

PARAMETR	VALUE
Type	Wheeled, Amphibious
Vehicle body	Armored, sealed
Bullet protection	In frontal projection from 12.7 x 108 mm B-32 bullets in lateral and aft projection from 7.62 x 39 mm B-32 bullets
Combat weight, kg	12 200 + 3%
Crew, persons	3
Paratroopers, persons	7
Main dimensions, mm:	
- length	7 720
- width	2 800
- height	2 320
Clearance, mm	475
Max speed, km/h:	
- on the highway	100
- afloat	10
Fuel consumption per 100 km on highway	38
Vehicle range:	
- by highway, km	750
- afloat, hours	18
Obstacles overcome:	
- lift angle, deg	30
- bank angle, deg	25
- width, m	till 2
- wall height, m	0,5
Number of engines	2
Engine type	FPT IVECO Tector (EURO-3), diesel, in-line, intercooled air-cooled
Number of cylinders	4
Engine resource, km	200 000
Maximum power, hp.	300 (150x2) at 2700 r/min
Maximum torque, N*m	490 at 2200 r/min
Fuel tanks, l	Two 290 l tanks (145 l each)
Tire type	Pneumatic, 13-18'', with centralized pressure control system
Communication facilities	Radio station «Lybid K-2RB» (Motorola DM4601) or as agreed with the Customer
Special equipment	- filter-ventilation unit, fire - extinguishing system for the - engine and transmission section

ARMAMENT

SPECIFICATIONS

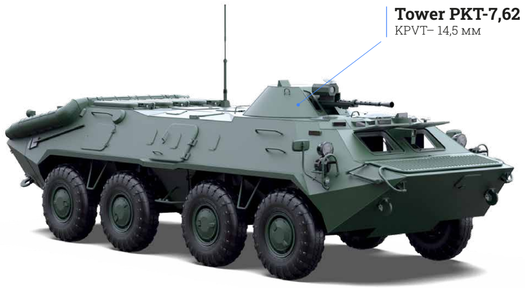
Tower unit	machine gun
Machine guns:	paired
Vladimir's large-caliber tank	
machine gun – 14,5 мм:	
- Aiming range, m	1500
- Rate of fire, rounds per minute	600
Ammunition	500 cartridges in ribbons in 10 boxes
Kalashnikov tank machine	
gun – 7,62 мм:	
Aiming range, m	2 000
Rate of fire, rounds per minute	650-700
Ammunition	2000 cartridges in ribbons in 8 boxes
Sight, type	Periscopic sight-61AM modernized,
	with thermal imaging channel
Human detection range	2000 m
Detection range of APCs	3000 м
Human Recognition Range	1500 m
Recognition range of APCs	2000 m
Multiplicity	2,6x
Angle of view, deg	23

ADDITIONAL UPGRADE OPTIONS

Enhancement of Anti-Bullet and Anti-Mine Protection Levels (as option)
The design of the BTR-70DIP chassis allows for the installation of additional ceramic anti-bullet and anti-mine armor, providing the following protection levels:

- Side projection: STANAG-4569, Level 3 – 7.62x54mm, B-32 bullet
- Frontal projection: STANAG-4569, Level 4 – 14.5x114mm, B-32 bullet
- Anti-mine protection: Resistance of the vehicle's bottom and wheel arches
- to the detonation of a high-explosive anti-tank mine (8 kg TNT equivalent);
- Armored glass: Protection against 7.62x54mm B-32 caliber projectiles.

Tower PKT-7,62
KPVT– 14,5 мм



Remote controlled weapon station (RCWS)
with KPVT 14,5 large-calibre machine gun «TAVRIYA» (14,5 mm)

AUTOMATED 23-MM ANTI-AIRCRAFT GUN MOUNT ZU-23-ORION WITH INTELLIGENT WEAPON CONTROL SYSTEM

TECHNICAL SPECIFICATIONS ZU-23-ORION

PARAMETR	VALUE
Main weapon	2 paired 23-mm autocannons
Rate of fire (from both guns)	1600-2000 shots/min.each)
Azimuthal range	n×360°
Gun raising/lowering range	+90°/-10°
Angular velocity	90°/sec
Aiming accuracy	<0,5 mrad
Cannon length (with flame dumper)	2555 mm
Cannon length (without flame dumper)	2425 mm
Barrel length (with flame dumper)	2010 mm
Barrel length (without flame dumper)	1880 mm
Max barrel pressure	3,1×102 MPa
Dimensions in combat mode:	
- Length	4632 mm
- Width	2880 mm
- Height	1220 mm
Weight (with cover and ammo) (depends on stationary/mobile configuration)	1000 kg
Operation temperature	-32°C/+55°C
Environmental conditions	MIL-STD-810G
Electromagnetic compatibility	MIL-STD-461G
Types of use	- Stationary - Mobile (vehicle-mounted)
Scope of application	- Aerial targets (incl. UAVs & cruise missiles) – at range of up to 2500 m and at altitude of up to 1500m - light armored ground objects and firing positions - at range up to 2000m - manpower gathering
Service crew of 4	- Commander - Operator* - 2 gunners

*remote operator workstation is available

AMMO:
- HE fragmentation incendiary rounds
- HE fragmentation incendiary tracing rounds
- armor-piercing incendiary tracing rounds
- blank rounds
- training rounds

Ammunition feed: 2×150 rounds

ORION WEAPON CONTROL SYSTEM MAIN FEATURES :
- Automatic target detection and acquisition
- Target tracking with further target path foresight
- Opto-electronic module housing day and night thermal camera and laser rangefinder
- Stationary or remote control of module weapons from closed positions
- Three operating modes: observation, charging, and combat mode
- Ballistic calculator
- Counter of fired cartridges and ammunition residue warning
- Interaction with radar and obtaining target coordinates
- Interaction with the Command Post

ZU-23-ORION MAIN BENEFITS:
- High mobility and maximum efficiency
- Reliable operation and camouflage capacities
- Excellent combat and superior tactical and technical performance
- Effective engagement of fast-moving targets
- Stable operation in various conditions at any time of the day or night
- Convenience of operation and service
- Maximum speeds allow to engage targets moving at high angular velocities
- Low rotational speeds allow for accurate shooting at long distances
- Modern and accurate control panel used by the operator allowing to use both hands
- Power supply from battery and/or external converter ensure system continuous operation (firing within 1 hour after external power cutoff)
- Possibility to obtain target guidance from radar or Command Post, automatic target detection, acquisition, tracking and engagement, including ballistics calculation and proactive fire to engage the target

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OVER 30 YEARS EXPERIENCE

Company founded in 1991 as a manufacturer of heavy vehicles.
Military projects started in 2013.
Production of 4x4 APC ONCILLA armored vehicles.
Renovation and modernization of the BTR-70 vehicle.
Design and manufacture remote control weapon stations spare parts manufacture and supply.