



SPETS
TECHNO
EXPORT



MAIN UKRAINIAN MILITARY PRODUCTS AND SERVICES

BRIEF CATALOGUE



SPETSTECHNOEXPORT (STE)

- Spetstechnoexport is an authorized state intermediary for the implementation of foreign economic activity in the field of export and import of products and services for military and special purposes
- STE is also one of the state-owned enterprises that perform the State Defense Order

- Expert in export and import of products and services of the Defense industry, innovation development, establishment of defense and technical cooperation with partner countries and companies
- 25 years of experience in the world defense market



BUSINESS PROFILE

EXPORT AND IMPORT OF PRODUCTS AND SERVICES



MODERNIZATION, REPAIR AND MAINTENANCE OF SPECIAL AND MILITARY EQUIPMENT



INVESTMENT IN HIGH-TECH DEVELOPMENTS



MARKETING AND INFORMATION CONSULTING ACTIVITIES



TECHNOLOGY TRANSFER AND JOINT PRODUCTION



LOCALIZATION OF MANUFACTURING



www.ste.com.ua



Brief catalogue
WEB



ARMORED VEHICLES	4 – 5
VARTA	
NOVATOR	
KOZAK 7	
KOZAK 2M	
KOZAK 5	
MILITARY AND SPECIAL PURPOSE VEHICLES	6 – 7
ATLET	
LEV	
GPM-72	
MODERNIZATION OF ARMORED VEHICLES	
REMOTE CONTROLLED WEAPON STATIONS	8 – 9
KASTET • DUplet AND OTHERS	



ROCKET AND MISSILE SYSTEMS	10 – 13
NEPTUNE	
VILKHA	
ARTILLERY	14
BM-21U VERBA	
BM-21UM BEREST	
2S22 BOHDANA	
ARTILLERY PROJECTILES	15
KVITNY	
KARASUK	
MISSILES AND ROCKETS	16 – 17
R-27	
RS-80	
AUTOMATIC CONTROL SYSTEMS	18
GURT-M	



ANTI-UAV	19 – 21
ADMU-12	
BUKOVEL-AD	
NOTA	
RADARS	22 – 28
90K6E	
1L221E	
MINERAL-ME	
P-18 TYPE	
36D6-M2	
RPV-16MA	
BISKVIT-KB	
DELTA	
ASR-23L	
COMINT SYSTEMS	29
PLASTUN RP-3000	
KHORTYTSIA-M	



CYBERSECURITY	30 – 31
----------------------------	----------------

TABLE OF CONTENTS

	MODERNIZATION OF AIR DEFENSE SYSTEMS 32 – 33 ZSU-23-4 SHILKA 2K22 TUNGUSKA 2K12M1-2L KVADRAT-2L S-125 PECHORA AND OTHERS
	HELICOPTERS 34 – 35 MI-2 MSB-1 MSB-8 AEROCOPTER AK1-3 SL-231 SCOUT
	AIRCRAFT AND HELICOPTERS MODERNIZATION 36 – 37
	UAS 38 – 42 SHOOLIKA MK6 CICONIA RAM II SOKIL-300 PUNISHER SPARROW LE RAYBIRD 3 MAGURA
	NAVAL WEAPON SYSTEMS 43 BAR'ER-VK ARBALET-K
	NAVAL RADARS AND FIRECONTROL EQUIPMENT 44 SENS-2
	SONAR COMPLEXES AND SYSTEMS 45 TRONKA-MK OLYMP-3K
	SMALL ARMS 46 – 49 UAR-10 UAR-15 VULCAN (MALYUK) 7.62X51 LMG Z-008 PRO
	LIGHT WEAPONS 50 KBA-48M KBA-117 UAG-40
	ARMOR PROTECTION SYSTEMS 51 ZASLON · NIZH-L · DUplet
	SIMULATORS 52

VARTA

ARMORED PERSONNEL CARRIER

VARTA is an armored personnel carrier (APC). It is ideal for transporting soldiers in combat situations and also can be equipped as a Command Vehicle, or vehicle for evacuating troops

The vehicle compartment is made from specialized 560-grade steel that protects the crew from armor-piercing incendiary ammo up to 7.62 mm. VARTA uses a V-shape hull structure to accommodate anti-mine seats, giving crew members protection to withstand the detonation of charges up to 6 kg of TNT

VARTA includes a combat module equipped with either the 7.62 mm or the 12.7 mm machine gun. The vehicle has ten gun ports around with the feasibility of accommodating a UBGL



ENGINE
V6 TD, 270-300 hp



MAXIMUM SPEED
120 km/h on road



MAXIMUM RANGE
1250 km



WHEEL ARRANGEMENT
4 x 4 (all-terrain chassis)



BALLISTIC PROTECTION
STANAG 4569 level 2, and mine blast 6 kg TNT



MINE PROTECTION
STANAG 4569 Level 2ab



WEIGHT
16,65 t



DIMENSIONS
6900 X 2550 X 2800 mm



CREW
2 + 8 + gunner

NOVATOR

ARMORED PERSONNEL CARRIER

NOVATOR armored vehicle is based on a redesigned and ruggedized Ford F550 chassis. It accommodates five soldiers within a cabin and has enough open-topped beds that can be configured for customer requirements

APPLICATION

Transportation of soldiers

Command vehicle

Evacuation of troops



ENGINE
TD, 6,7 l, 300 hp



TORQUE
895 N*m



TRANSMISSION
6 TorqShift automatic



MAXIMUM SPEED
120 km/h



BALLISTIC PROTECTION
STANAG 4569 Level 1



MINE PROTECTION
STANAG 4569 Level 1ab



WEIGHT
8845 kg



DIMENSIONS
6400 x 2385 x 2350 mm



CREW
2 + 3



KOZAK 7

TACTICAL ARMORED VEHICLE 4X4

KOZAK-7 is a tactical vehicle of light class. It is chassis-based but has special mil-spec axles with CTIS, which gives the vehicle outstanding off-road performance. In combination with the powerful engine, this gives a possibility to perform a wide range of auxiliary tactical tasks



ENGINE

Ford, diesel, 330 hp



TORQUE

1109 N*m



BALLISTIC PROTECTION

STANAG level 2



WEIGHT

12000 kg



DIMENSIONS

6250 X 2310 X 2370 mm



CREW

2 + 8

KOZAK 2M

TACTICAL ARMORED VEHICLE 4X4

The KOZAK-2M is a full-fledged tactical armored vehicle and the next generation of the Kozak-2 armored vehicle. Unlike its predecessor, it does not have a base chassis; instead, it features a 'monocoque' hull design. Key features include a monocoque hull, independent suspension, high ground clearance (430 mm), and CTIS, which together give high off-road performance



ENGINE

Iveco, diesel, 280 hp



TORQUE

950 N*m



BALLISTIC PROTECTION

STANAG level 2



WEIGHT

13500 kg



DIMENSIONS

6200 X 2565 X 2425 mm



CREW

2 + 6

KOZAK 5

VEHICLE FOR POLICE AND SPECIAL FORCES

KOZAK-5 is designed to perform police and special forces combat missions. It is based on the Ford F550 truck and has complete crew compartment protection (STANAG level 2) and a non-armored rear cargo compartment. Suspension, brake system, and front axle were especially reinforced due to the extended mass of the vehicle



ENGINE

Ford, diesel, 330 hp



TORQUE

1109 N*m



BALLISTIC PROTECTION

STANAG level 2



WEIGHT

10000 kg



DIMENSIONS

5980 X 2360 X 2320 mm



CREW

2 + 3

ATLET

ARMORED REPAIR AND RECOVERY VEHICLE

The Atlet ARRV is used in the composition of repair and recovery groups in the rear of tracked convoys when conducting a march, DPVs, units and formations, recovery groups during fording operations, maintenance points, etc. They strengthen mobile maintenance means of tank battalions, division mechanized brigades and other units and formations, equipped with heavy tracked equipment



ENGINE

6TD-2, 1200 hp



MAXIMUM TRACTION FORCE

250 kN



OPERATING WEIGHT

46 t
Ground pressure — 0.93 kg/cm²



DIMENSIONS

8890 x 3560 x 2740 mm



ROPE OPERATIONAL LENGTH

130 m



CREW

3



CRANE

MAXIMUM CAPACITY	25 t
MAXIMUM RADIUS	6.8 m
JIB SWINGING ANGLE	0-75°
JIB TRAVERSING ANGLE	360°
CRANE TRAVERSING SPEED	0.2-1.5 rpm
HOOK LOWERING AND HOISTING SPEED	0.2-6 m/min



MILITARY AND SPECIAL PURPOSE VEHICLES



LEV

ARMORED REPAIR AND RECOVERY VEHICLE

Designed for mechanical support on the battlefield, assisting with the emergency evacuation of tanks from the enemy war zone by pulling tanks that have become stuck or sunken. It is also capable of carrying, lifting, performing digging and welding works, and providing technical assistance to armed units



GPM-72

FIRE FIGHTING HEAVY VEHICLE

Designed for different classes of firefighting using water or foam, transportation of fire brigades to the place of fire, firefighting-technical equipment, and carrying out rescue operations on arsenals, bases, ammunition depots, and oil wells, clearing passages to the place of fire



MODERNIZATION OF ARMORED VEHICLES

MODERNIZATION AND SPARE PARTS SUPPLY FOR ALL SOVIET-ORIGIN ARMORED VEHICLES:

- **MBTs:** T-55, T-64, T-72, T-80 etc.
- **APCs:** BTR-50, 60, 70, 80
- **IFVs:** BMP-I, BMP-II, BRDM etc.

MODERNIZATION OF POWERPACKS WITH THE INCREASED HP — UP TO 1500 HP FOR:

- T-72, T-80, T-84, T-90, T-55, M60 tanks

SUPPLY OF ACTIVE AND REACTIVE ARMOR PROTECTION SYSTEMS:

- NIZH
- ZASLON
- Duplet
- range finder and jammer F3 Phantom installation on tanks and APCs



REMOTE CONTROLLED WEAPON STATIONS

KASTET

REMOTE CONTROLLED WEAPON STATION

Kastet combat module is an in-depth modernization of the Shkval combat module. The combat module is designed for arming the newly created and modernization of the existing armored vehicles of light and medium weight class, as well as for installation on riverboats and sea-going ships, fortifications, etc

ARMAMENT

Automatic gun	ZTM-1, 30 mm
Firing rate	330 rds/min
Machine gun	KT 7.62 mm
Firing rate	250 rds/min
Automatic grenade launcher	KBA-117, 30 mm
Firing rate	50-400 rds/min
Anti-tank guided missile	Barrier
Firing range min / max	100 m/5000 m
Guidance system	Semi-automatic by laser beam



DUPLET

REMOTE CONTROLLED WEAPON STATION

The Duplet RCWS is optimized for use on the BMP-2 family of combat vehicles. In addition to an increased amount of firepower, an important characteristic of the Duplet RCWS is its autonomy

The module enables multichannel weaponry (i.e. ability of its simultaneous usage for different purposes)

ARMAMENT

Machine gun 1	2 x ZTM-2, 30 mm
Sighting range	with APTr and APITr shells — 2000 m with HETr and HEI shells — 4000 m range for air targets — 2000 m Blank range/Range of direct shot — 1100 m
Fire rate	550 rounds per minute
Machine gun 2	2 PKT, 7.62 mm
Sighting range	1700 m
ATGM	4 launchers of Konkurs ATGM
Effective range	5000 m

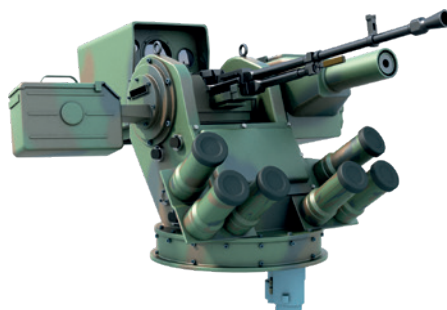




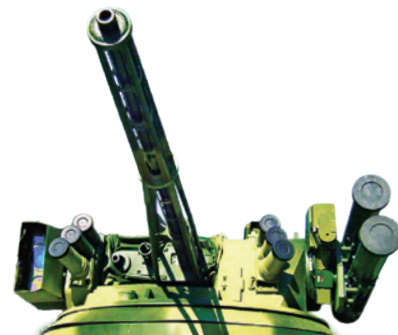
OTHER TYPES OF RCWS AVAILABLE



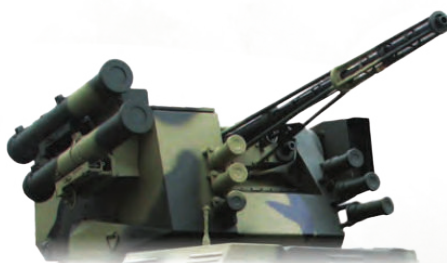
BLIK-2M



IVA



SHTURM-M



PARUS



SARMAT-300



STILET
RCWS

NEPTUNE

ANTI-SHIP MISSILE SYSTEM

NEPTUNE is a land-based anti-ship missile system. It is intended to defeat warships such as cruisers, destroyers, frigates, corvettes, tank landing ships and vehicles, which operate both independently and as part of the ship groups and amphibious groups, as well as coastal radio-contrast targets in visual and adverse meteorological conditions, under an active fire and electronic countermeasures by an enemy



FIRING RANGE
up to 280 km



QUANTITY IN SALVO
16 pcs



TIME OF DEPLOYMENT
up to 15 min



MAX AMMUNITION RESERVE
72 pcs



MAXIMUM SPEED
70 km/h – on highway
20 km/h – on off-road



FIRING INTERVAL IN SALVO
from 3 to 5 s

R-360 CRUISE MISSILE



CONTAINER WEIGHT
up to 870 kg



WARHEAD WEIGHT
150 kg



DIAMETER
420 mm





THE SYSTEM CONSISTS OF:



MOBILE COMMAND POST
1 EA



RK-360
4 EA in 1 launcher



UNIFIED SELF-PROPELLED LAUNCHER
1 – 4 EA



TRANSPORT-LOADING VEHICLE
1 – 4 EA



TRANSPORT VEHICLE
1 – 4 EA



SET OF GROUND EQUIPMENT
1 SET



VILKHA

MULTIPLE LAUNCH ROCKET SYSTEM

VILKHA (MLRS) is designed to destroy armored, lightly armored and unarmored vehicles, enemy manpower, command posts, communication centers, military-industrial facilities, aboveground facilities for storage and other purposes at long distances



FIRING RANGE
up to 130 km



DURATION OF FULL SALVO
not more than 40 s



TIME OF ROCKET CONTROL
not more than 3 min



QUANTITY OF ROCKETS IN MULTIPLE LAUNCHING POD
12 pcs



GUIDANCE SYSTEM
INS+GPS



OPERATION TEMPERATURE RANGE
from -40 to +55 °C

GUIDED ROCKET

The peculiarity is that at the initial part of the flight path, a rocket flight correction is provided with the help of pulse engines that reduce to minimum rocket fly deviation from the preset course. In the final part, the rocket is aimed at the target by an inertial and satellite navigation system using aerodynamic control surfaces. The VILKHA MLRS ensures forming of individual flight task for each rocket unit that makes possible to defeat several targets by one salvo



VILKHA



CALIBER
300 mm



RANGE
70 km



WEIGHT
923 kg



WARHEAD WEIGHT
250 kg



CIRCULAR ERROR PROBABLE
10 m

VILKHA-M



CALIBER
300 mm



RANGE
130 km



WEIGHT
820 kg



WARHEAD WEIGHT
170 kg



CIRCULAR ERROR PROBABLE
30 m





THE SYSTEM CONSISTS OF:



LAUNCHER
1-4



MOBILE COMMAND POST
1 EA



TRANSPORT-LOADING VEHICLE
1-4



GUIDED ROCKET
8-12 EA in 1 CV



SET OF GROUND EDPT
1 SET



BM-21U VERBA

MULTIPLE LAUNCH ROCKET SYSTEM (122 mm)

BM-21U combat vehicle is designed for the destruction of:

- unprotected and sheltered enemy manpower and equipment
- armored personnel carriers, tanks, and other military equipment in areas of concentration
- artillery and mortar batteries, tactical missile batteries, helicopters on landing areas
- command posts, storage with fuel and ammunition
- other purposes



BM-21UM BEREST

MULTIPLE LAUNCH ROCKET SYSTEM (122 mm)

The combat machine consists of an artillery unit and a KrAZ-5401 NE chassis

THE COMBAT MACHINE HAS:

- electronic control unit for firing channels
- navigation system
- fire control system
- digital communication and reception and transmission of information

The BM-21UM Berest combat machine is designed for:

- destruction and suppression of the enemy's life and military equipment in the areas of their concentration
- destruction and suppression of artillery and mortar batteries
- destruction of fortifications, support points, and enemy resistance points



2S22 BOHDANA

SELF-PROPELLED HOWITZER (155 mm)

The 2S22 Bohdana is developed in Ukraine. It is based on the 6×6 chassis of the KrAZ-6322. It has an armored cabin and enough storage for around 20 shells. The howitzer has a minimum range of 780 meters and a maximum range of 40 km with HE/AP ammunition or 50 km with a rocket-assisted projectile. It has an average rate of fire of six shells per minute



ARTILLERY PROJECTILES

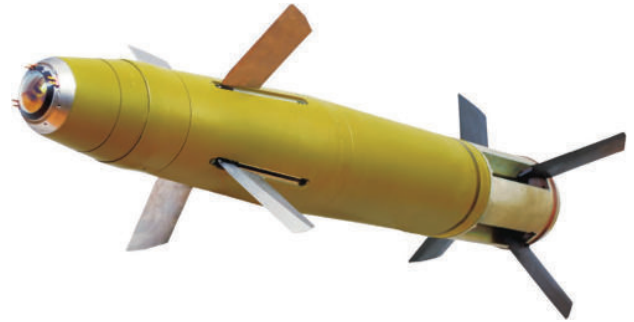


KVITNYK

HIGH PRECISION GUIDED ARTILLERY PROJECTILE WITH LASER SEMI-ACTIVE HOMING GUIDANCE

The Kvitnyk projectile is designed for a high-precision strike on various targets. The missile fires from an artillery system as a part of a system of guided artillery arms

The Kvitnyk is designed for effective defeating of tanks, IFVs, armored vehicles, multiple rocket launchers, self-propelled artillery systems, artillery pieces, both on the move and stationary, located open air or in pits, command, control, communications centers, bridges, crossings, defense fortifications, surface targets (combat, landing or transport ships), etc with a high probability of the first-shot hit



COMBAT PART TYPE
high-explosive fragmenting



WEIGHT OF EXPLOSIVES
not more than 8 kg



FIRING RANGE
3-20 Km



WEIGHT OF PROJECTILE
not more than 48 kg



CALIBER
152 (155) mm



LENGTH
1250 mm



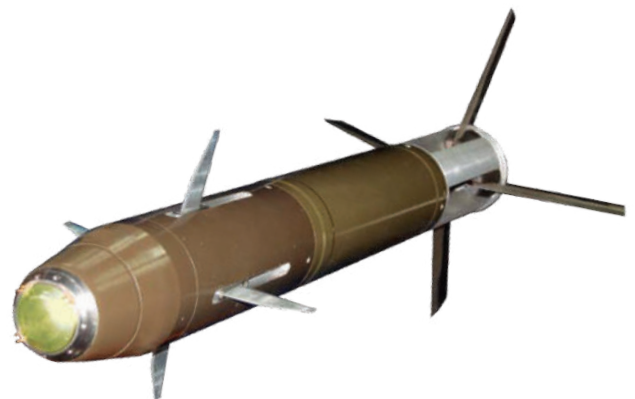
OPERATING TEMPERATURE RANGE
from -40 to +50 °C

KARASUK

GUIDED ARTILLERY PROJECTILE WITH LASER SEMI-ACTIVE SELF-GUIDANCE TYPE

KARASUK IS EFFECTIVE AGAINST:

- Tanks
- Armored infantry vehicles
- Armored vehicles
- Missile launchers
- Self-propelled artillery systems
- Artillery pieces, stationary and moving, located openly or in shelters
- Command, control centers, communications, computer and intelligence centers
- Bridges, crossings, defensive fortifications
- Surface targets (combat, landing or transport vessels, etc) with a high probability of the first-shot hit



COMBAT PART TYPE
high-explosive fragmenting



WEIGHT OF EXPLOSIVES
not less than 5 kg



FIRING RANGE
12000 m



WEIGHT OF PROJECTILE
not more than 28 kg



CALIBER
122 mm



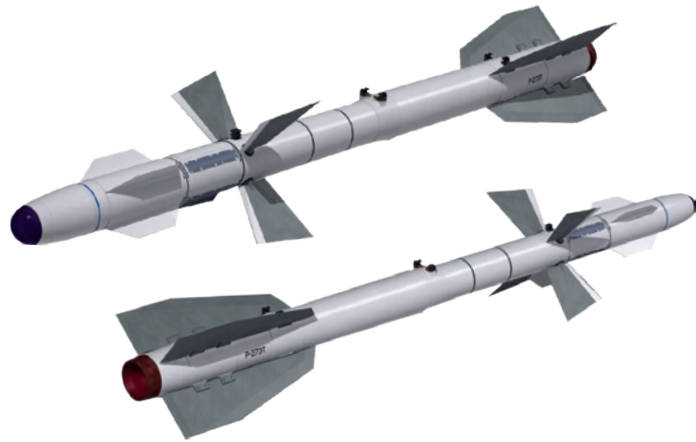
OPERATING TEMPERATURE RANGE
from -40 to +50 °C

R-27

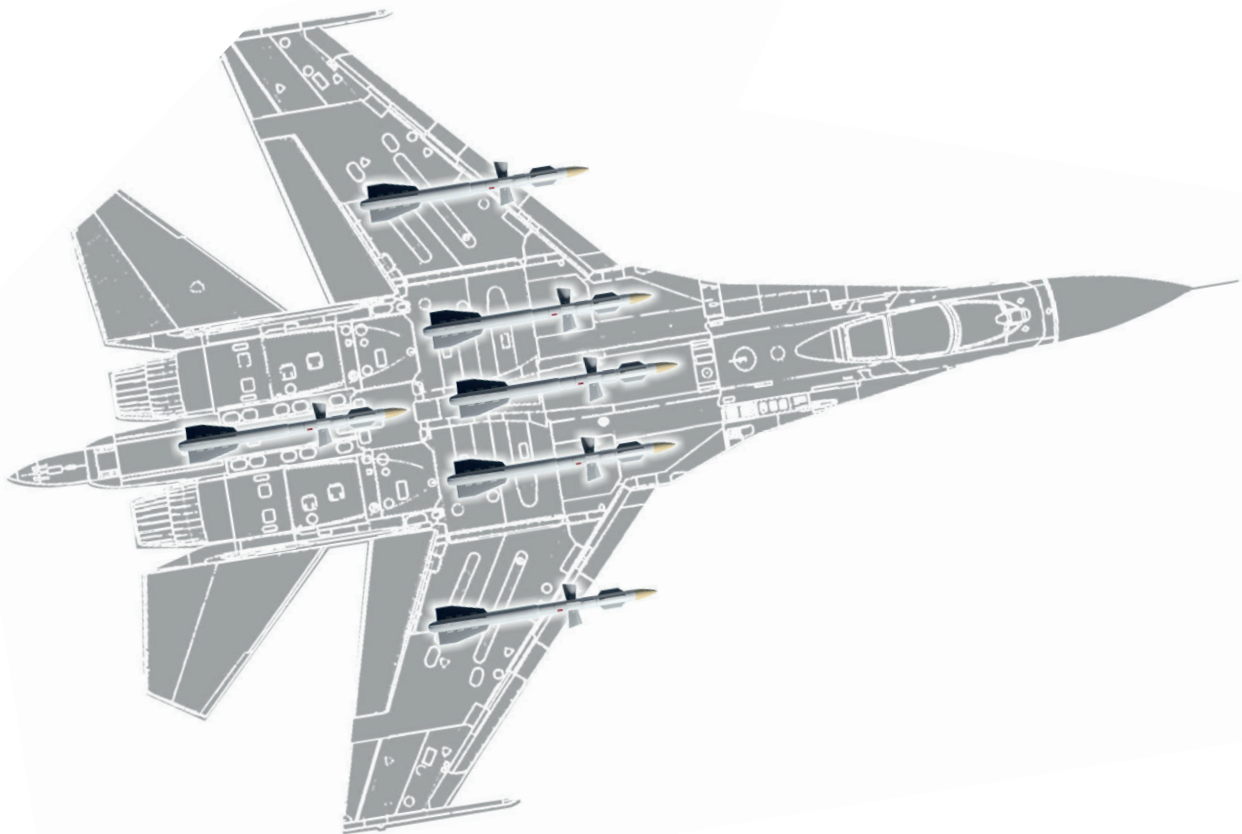
AIR-TO-AIR MISSILES

The R-27 is a medium-range, guided air-to-air missile. It is designed to intercept and destroy hostile piloted aircraft, drone targets, and cruise missiles in long-range and close-in maneuverable air fights. It features a modular three-part construction – the equipment and guidance section with a homing head, warhead, and solid-propellant rocket motor

The missile has three mounting points to the aircraft. It is compatible with the MiG and Su aircraft weapon systems



Type of missile	R-27ER1	R-27R1	R-27ET1	R-27T1	R-27EP1	R-27P1
Launch weight	350 kg	253 kg	343 kg	245 kg	346 kg	248 kg
Launch altitude	to 27 km	to 25 km	to 27 km	to 25 km	to 20 km	to 20 km
Maximum launch range, km head-on aspect / tail aspect	93 / 26	60 / 18	84 / 20	50 / 15	110 / –	78 / –
Guidance	Semi-active radar seeker with command updates		IR seeker		Passive guidance on radar and jammer	





RS-80

UNGUIDED AIRCRAFT ROCKETS

Unguided aircraft rocket RS-80 with shaped-charge fragmentation warhead represents an upgraded version of the unguided aircraft rocket S-8KOM. This rocket is designed to destroy hostile armored, lightly-armored, non-armored combat equipment and enemy fighters. It is used with Su and MiG fighter aircraft types, Mi and Ka helicopters types. It is designed to be launched from B8 launching pods and their modifications (analog)



CALIBER
80 mm



**ARMOR PENETRATION DEPTH
(30° TO NORMAL)**
Up to 430 mm



ROCKET LAUNCHING MASS
12,8 kg



LAUNCH RANGE
1000-5000 m



MAXIMUM ROCKET VELOCITY
625 m/s



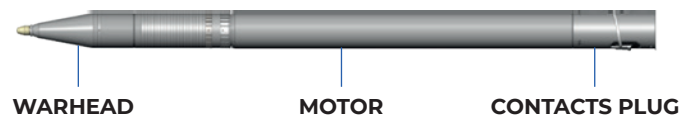
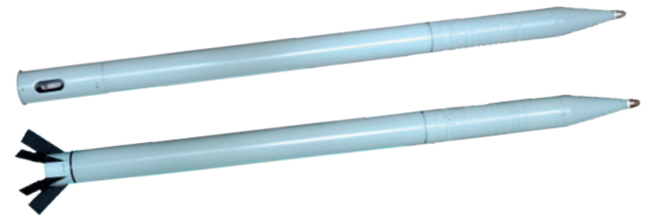
EXPLOSIVE MASS
1,1 kg



LENGTH
1595 mm



WARHEAD MASS
4,6 kg





GURT-M SYSTEM

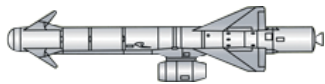
AUTOMATIC CONTROL AND DIAGNOSTICS SYSTEMS OF GUIDED HIGH-PRECISION WEAPON

THE MODERNIZED GURT-M SYSTEM ENSURES

- check and testing for the application of more than 50 various modifications of air missiles and guided air bombs
- specialized equipment, in addition to the AKPA, may also include diagnostic equipment sets (KDO) that allows pinpointing failures in missiles for their repairing. The missiles, for which the KDO are designed, are marked with red
- missile outgoing inspection at manufacturing plants
- failure diagnosis while missiles repairing
- forecast of missiles technical state while prolonging their service life



SUPPORTED AIR MISSILES AND BOMBS



KH-59, KH-59M, KH-59ME



R-73K, R-73L, R-73E, U-73



KAB-500L
KAB-500L-K
KAB-500OD
KAB-500KR
KAB-500KR-U
KAB-1500L-F
KAB-1500L-PR
KAB-1500KR



R-27R1, R-27ER1, R27T1, R-27ET1, R-27P, R-27EP, 470UT-RT, 470UT-ERT



KH-29T, IKH-29T, KH-29TD, IKH-29TD, KH-29L, IKH-29L, S-25L, S-25LD



KH-31A, KH-31A-UD



R-60M, R-60K, R-60MK



KH-31P (WITH L-111)
KH-31P (WITH L-112)
KH-31P (WITH L-113)
KH-31P-UL(WITH L-111)
KH-31P-UL (WITH L-112)
KH-31P-UL (WITH L-113)



KH-25MP (WITH LO77M)
KH-25MP (WITH LO15M1)
KH-25ML (WITH 24N1)
KH-25MR (WITH V500)
KH-25MU (WITH LO77M)
KH-25MU (WITH LO15M1)
KH-25MU (WITH 24N1)



R-40T, UR-40T



R-40TD, R-40RD, R-40TD1, R-40RD1, UR-40TD, UR-40RD



R-33



R-33S



ADMU-12

ANTI-UAV COMPLEX

The «ADMU-12» Complex is designed and manufactured by taking into consideration the studied experience of other manufacturers of equipment for counteraction undesirable UAVs. At the same time, special attention was paid to achieving the best value for the price / quality ratio

Complex implements the principle of radio frequency detection of UAVs, as the only objectively reliable. All the radio signals detected by the Complex are analyzed by its internal algorithms without the need to access cloud services (external databases).

The Complex is constructed of two modules: a module of scanning receivers (MSR) and a module of analysis and control (MAC). MSR and MAC are interconnected by RS-485 type switching and control bus (SCB).

The Complex is designed to work in FULLY AUTOMATIC mode. The decision of the presence of a UAV over the protected object is made by automation without human intervention



MSR WEIGHT
13 kg



UAV DETECTION RANGE
3000 m



MAC WEIGHT
1 kg



UAV DETECTION TIME
min 3 s



MSR DIMENSIONS
600 x 800 mm



VERTICAL ANTENNA PATTERN
360°



MAC DIMENSIONS
222 x 146 x 51 mm



HORIZONTAL ANTENNA PATTERN
± 90° (upper hemisphere)



OPERATING TEMPERATURE
from -20 to +50°C



SCANNED RF BAND
2,4 and 5,8 GHz



INGRESS PROTECTION RATING
IP 53



POWER, DC
12 V



Complex can work in two Alarm-logics (which is set by the installer during commissioning). The choice Alarm-logic depends on the type of active protection devices (APD) which can be connected to the Complex:

ALARM-LOGIC №1 (APD is not connected to the Complex). Complex, with the best accuracy 60 degrees, determines the sector in which the UAV is located and sends this information by the radio pager to the object's security officer. Also pager displays information about the radio band in which the alarm is occurred (2.4 or / and 5.8 GHz). After that, the security officer by using of wearable electromagnetic rifle (or other device) affects to the UAV-intruder

ALARM-LOGIC №2 (APD is connected to the Complex). If UAV-intruder is detected (also with the best accuracy 60 degrees), Complex automatically turns on the APD according to a certain cyclic procedure (radio scanning / APD activation, etc.) until the radio signal from the undesirable UAV disappears (the UAV has flown away, has fallen). Any GPS jammers and UAV's remote controller jammers can be used as APD. In Alarm-logic №2 security officer's radio pager is not used

BUKOVEL-AD

ELECTRONIC WARFARE AND TACTICAL JAMMERS

Bukovel-AD is an effective electronic warfare system to counter a wide range of UAVs

It has real combat experience with several hundred successful missions. Each technical solution of the system is the result of the accumulated experience gained during warfare with a high-tech enemy. The system has high mobility and can complete a set of tasks performed from detecting, tracking targets to suppressing satellite navigation channels and communication channels between UAVs and GCS



OBSERVATION ANGLE
59-2,3°



OPTICAL ZOOM
36x



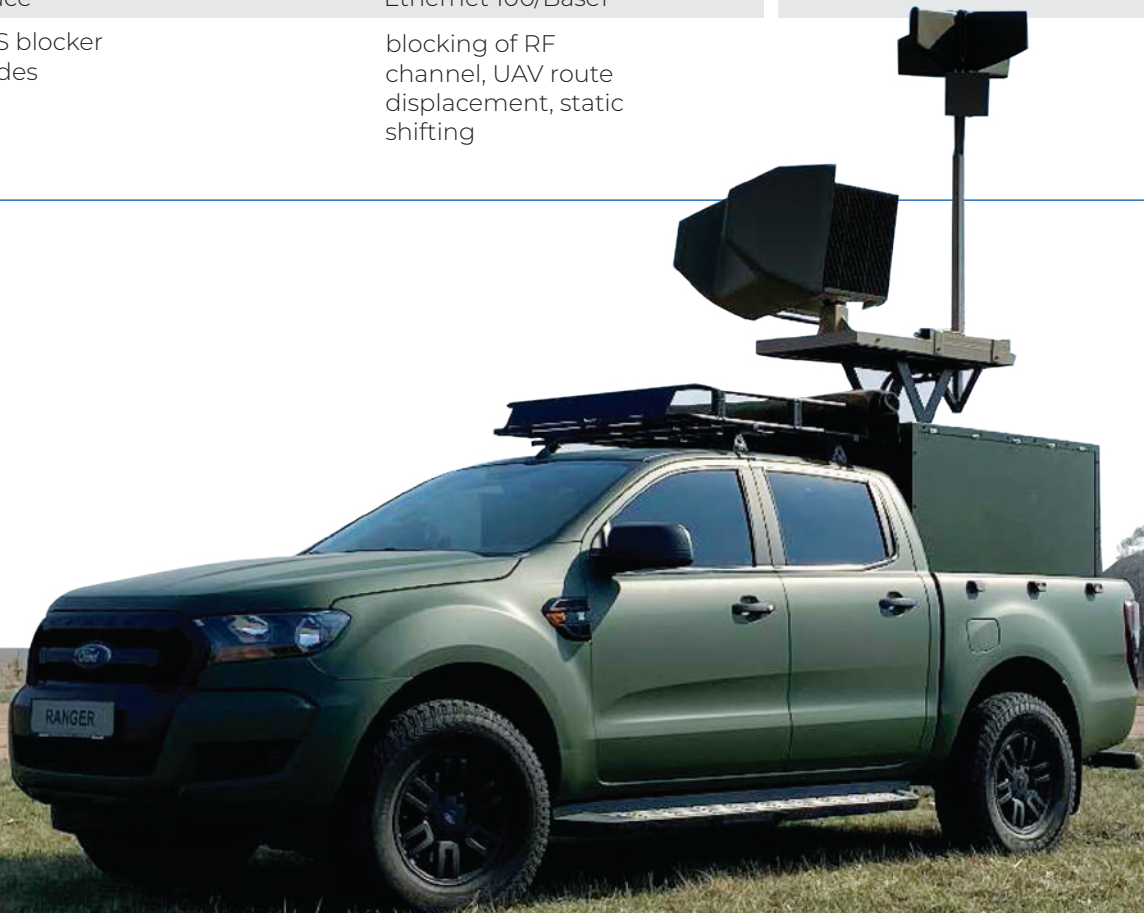
IR SENSOR
36 mm, 640X512, frame-repetition rate 25 Hz



Azimuth / vertical plane	360°/120°
Speed	6° per sec
Frequency band	390-6200 MHz
Output power	6*20 W
Beamwidth	35*65°
Antennas gain	9.5 dBi
Control interface	Ethernet 100/BaseT
GPS/GLONASS blocker operation modes	blocking of RF channel, UAV route displacement, static shifting

PRX-AD-SC MANAGEMENT MODULE MAIN PARAMETERS

- Software:
- Radar information presentation module
 - Optical detectors module
 - SIGINT module (optional)
 - Blocking synthesizers management module





NOTA

ELECTRONIC WARFARE SYSTEM

The NOTA system is designed to neutralize UAVs, disrupt mobile networks (GSM, UMTS, LTE, CDMA, Wi-Fi, VHF), countering signal and radar intelligence systems. The NOTA system provides direction finding of radio sources and radio jamming of wireless communication, channels of satellite navigation, remote control, telemetry, and technical intelligence means

The NOTA system is designed for military and civil applications. It can be adjusted to customer requirements (frequency band, emission pattern, power, etc.)

The operation Console of the system has a unified WEB interface (thin client) and allows the simultaneous work of several operators. The system can be used at airports, while certain frequencies for airborne radio communication or frequencies required for the safe landing of aircraft may not be muted. The required parameters are specified by the software

RANGE OF THE NOTA SYSTEM:

Ku frequency band	300-6200 MHz
Radio Intelligence Sector	Circular 360
Frequency range using directional and omnidirectional antennas	350-6150 MHz
Output power counteracting communication networks	450 W
Range using directional antennas	15 km
Range using omnidirectional antennas	5 km (counteraction to control channels), 15 km (GPS counter)
UAV counter-power output	385 W



DETECTION

not less than 20 km



CREW

2



COUNTERMEASURES TO THE UAV

not less than 20 km



WEIGHT

not more than 250 kg



DEPLOYMENT TIME

up to 20 minutes



DURING OPERATION OF THE SYSTEM NOTA DOES THE FOLLOWING:

- Detection of the UAV's operation
- Determination of UAV bearings
- Deactivation of satellite navigation channels in the frequency range NAVSTAR, GLONASS, GALILEO, GPS, BEIDOO
- Deactivation of remote control channels in the frequency range up to 6 GHz



90K6E

MOBILE 3D SURVEILLANCE RADAR

The mobile 3D air surveillance radar with a solid-state transceiver, intended for low, medium and high altitude flying targets detection. It is designed to be used:

- as target designation system in anti-aircraft missile troops
- as an information link in AD and AF units

The radar can be transported by C-130 Hercules aircraft



MAIN SPECIFICATIONS

Maximum radar operation limits:		Transmitter peak power	32 kW
in range	500 km	Clutter suppression	50 dB
in azimuth	360°	Jamming cancelling	20 dB
in elevation	0°-70°	Track throughput	more than 500
Detection range of target flight altitude 10-30 km	450 km	IFF equipment	built-in
		Transmitter type	Solid State





1L221E

ARTILLERY TRACKING RADAR

The radar allows determining the coordinates of mortar firing positions, cannon artillery, rocket launcher systems, tactical missile launch positions at the first shot (launch). The radar provides coordinates of enemy positions and adjusts the firing of own weapons by automatic fire control systems

FEATURES

- Target detection and adjusting of artillery shooting
- Verification of firing system types: mortars, artillery, tactic missiles
- Using as an element of reconnaissance strike complex
- Operations in difficult climatic or jamming conditions

MAIN SPECIFICATIONS

Detection range:	
artillery	23-28 / 28-29 km
mortars	20-24 / 25 km
MLRS	38-39 / 55-59 km
tactical missiles	55 / 58 km
Electronic scanning detector:	
in azimuth	60° (± 30°)
in elevation	40° (+25° – -15°)



FREQUENCY BAND
S



FIRE POSITIONS
60 min



ACCURACY
0,35% from range



DEPLOYMENT / CLOSING DOWN
20 / 15 min

MINERAL-ME

MULTIFUNCTIONAL TARGET DESIGNATION RADAR SYSTEM

The Mineral-ME complexes of marine and coastal basis are the integrated multifunction information-and-control systems that are based on the usage of different information sensors (of active, passive, mobile surveillance posts) within one information field, provide the over-the-horizon detection of surface targets and deliver target designation data for full firing range of missile weapons



MAIN SPECIFICATIONS OF SUBSYSTEMS

Radar type		Active	Passive	MEI-MOR
Frequency band		I	I, G, E/F, D	I
Scanning zone	through azimuth through range	360° 35 (100-250) km	360° up to 450 km	360° up to 30 km

P-18 TYPE

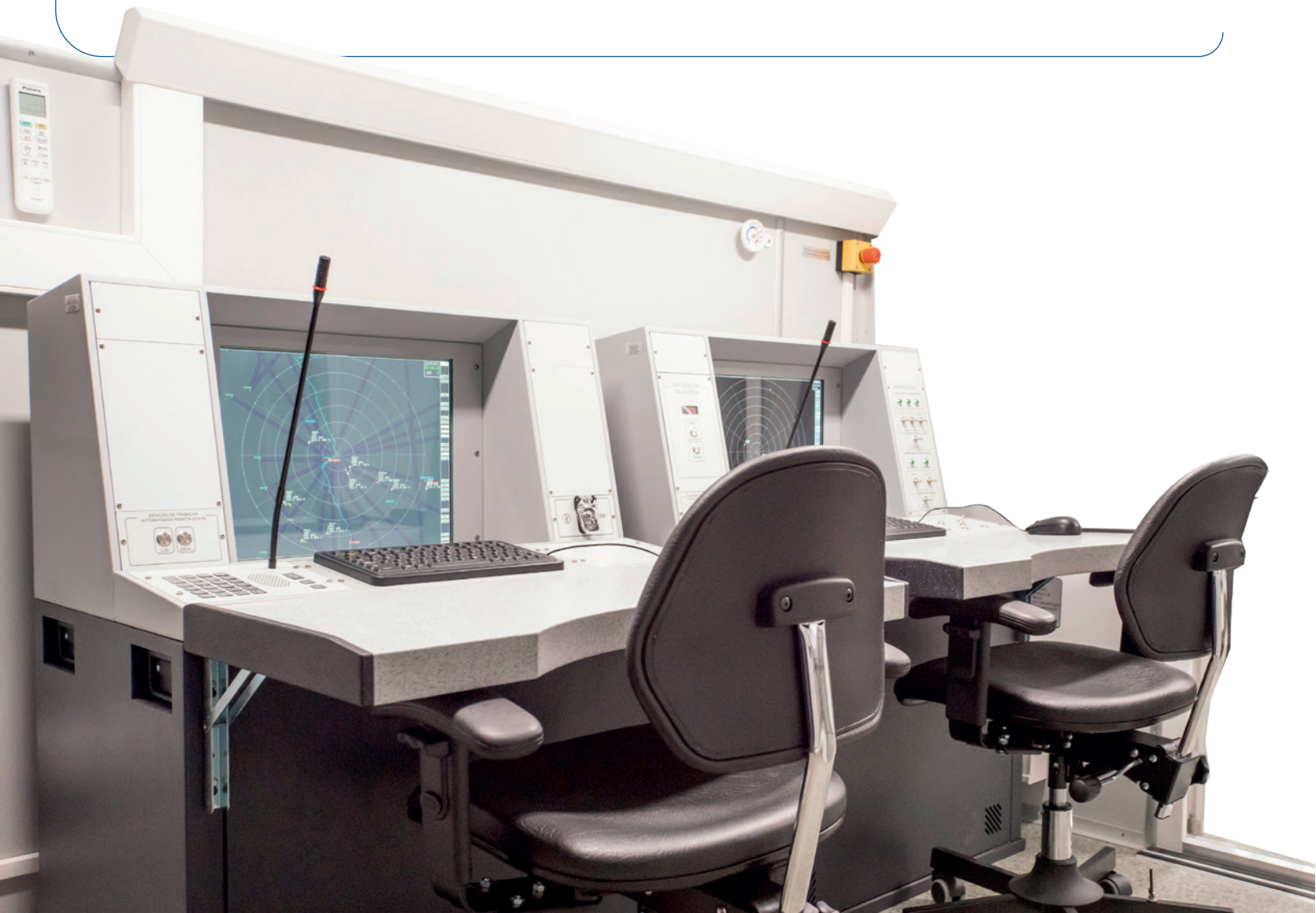
SOLID STATE VHF RADAR

POSSIBILITIES AND ADVANTAGES:

- High detection range, accuracy, jamming immunity, numbers of plots and tracks, reliability
- High dynamic range (up to 100 dB) resulting in high jamming immunity and suppression of clutter and weather formations
- Implemented functions of a radar extractor for post-detection signal processing (detection, location measuring, plots generation, clutter map, scan-to-scan processing, stabilization of false target generation, processing of identification signals, data distribution to consumers)
- A large number of probing signals, ability to choose the best one depending on the air situation, jamming and combat conditions
- Reconfigurable (via program or random) parameters of probing signal — working frequency, modulation type, waveform
- Efficient algorithms for clutter suppression with a wind speed compensation the automatic combining of amplitude and coherent channels that decrease signal loss and increase detection range and accuracy implementation of an automatic built-in diagnostic system



Frequency band	140-180 MHz
Radar coverage zone, max zone	up to 500 km
Location accuracy:	
range	200 m
azimuth	0,4°
Resolution:	
range	1200 m
azimuth	8°





36D6-M2

HIGH-MOBILITY SURVEILLANCE RADAR

The high-mobility surveillance radar is intended for detection and target identification at the low and high height at the influence of active and passive jamming with the coordinate and tracks data output



OPERATION BAND

S



NUMBER OF TRANSPORT UNITS

2



INSTRUMENTED RANGE

90, 180, 360 km



DEPLOYMENT / CLOSING TIME

<30 min



ANTENNA TYPE

DPAR



Detection range for low flying targets	RCS = 1-2 m ²	Track capability	>256
at flight altitude 100 m	42 km	Accuracy, range	100 m
at flight altitude 1000 m	110 -115 km	Accuracy, azimuth	10 – 15 angular min
Azimuth coverage	360°	Accuracy, altitude	400 m AT < 70 km range
Elevation coverage	0,5° – 30° in 2 rev.	MTBF	800 hours
RPM	>48 dB		



PRV-16MA

HEIGHT FINDER UPGRADE

Mobile Height Finder PRV-16MA is a mobile jam-protected centimetric pulse radar

Designated for detection, coordinate determination (azimuth, range, height), when operated independently or through Extractor AI000-H, ensures automatic and semi-automatic height measurement for targets with a coordinate designation from P-140MA, P-180Y, P-190Y radars

Data exchange between Radar and PRV is conducted via PS-232C Interface

PRV-16MA is protected from the interference of various obstacles:

- Against local object clutter and passive jamming – MTI System
- Active jamming (noise, pulse) and non-synchronous jamming – frequency tuning capability



**OPERATION
FREQUENCY RANGE**
Centimetric



AVERAGE POWER
300 W



MAXIMUM RANGE
300 km



SWITCH-ON TIME
5 min



CONSUMED POWER
no more than 30 kW

DETECTION RANGE

for Targets with SCS = 1 m² and with P=0.5

HTARGET (500 m)	no less than 65 km
HTARGET (4000 m)	no less than 220 km
HTARGET (6000 m)	no less than 250 km

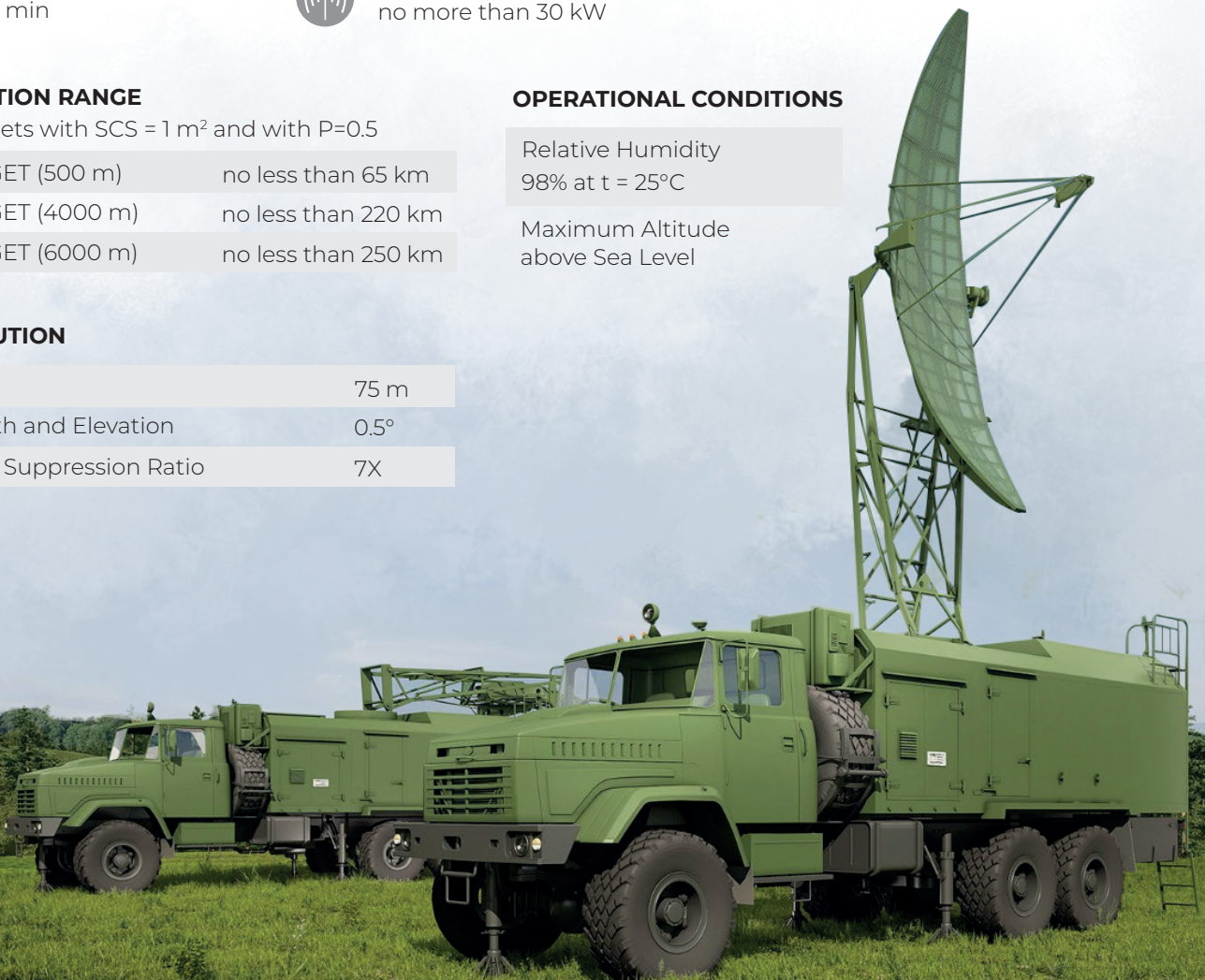
OPERATIONAL CONDITIONS

Relative Humidity
98% at t = 25°C

Maximum Altitude
above Sea Level

RESOLUTION

Range	75 m
Azimuth and Elevation	0.5°
Clutter Suppression Ratio	7X





BISKVIT-KB

COUNTER-BATTERY RADAR

The Biskvit-KB radar is designed for radar reconnoitering of positions of mortars, multiple launch rocket systems, large-caliber artillery and provides automated transmission of radar data via communication channels to perspective Automated Systems and Automated Command Centers

The radar is performed based on a digital beam-forming (DBF) phased array.

Constructive solutions allow installing the radar on LAVs, conventional vehicles, or stationary objects



FREQUENCY BAND
L-BAND



ELEVATION RANGE
up to 40°



DETECTION RANGE
up to 20 km



AZIMUTH RANGE
360°



WEIGHT
80 kg

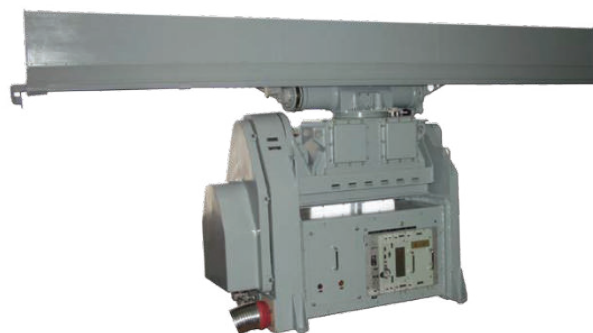
DETECTION RANGE

120 mm mortar ammunition	7-8 km
81 mm mortar ammunition	4-5 km
MLRS ammunition	10-15 km
Howitzer	10 km

DELTA

MOBILE SOLID-STATE ALL-ROUND OBSERVATION 2D RADAR FOR NAVAL APPLICATIONS

The DELTA radar is a modern mobile two-dimensional pulse coherent solid-state radar for surface and air surveillance with low probability interception of its electromagnetic radiation. It delivers in a fully automatic way the current coordinates of any target located within its area of detection. This mobile radar could be installed on transport vehicles (automobiles, armored personnel carriers, infantry combat vehicles, etc) which allows arranging its operation in uplands to ensure necessary viewing conditions



DETECTION RANGE

Antenna rotation	3, 6, 12 s
Power supply	220 W, 50 Hz
Power consumption	not more than 500 W
Equipment weight	150 kg
Maximum target detection range:	
small size air type	8-20 km
ground-based	16-20 km
surface type	radio horizon range



FREQUENCY BAND
X



NUMBER OF TARGETS TRACKED
up to 50



BANDWIDTH
150 MHz



RANGE SCALE
12, 24, 48, 96 km

ASR-23L

AERODROME RADAR

ASR-23L Airport surveillance radar is designed to survey and control the airspace in the airfield area

The ASR-23L combines primary and secondary channels as well as a side-lobe suppression channel to improve detection performance. The primary channel of ASR-23L operates in the L band (ICAO), the secondary channel uses standard RBS frequencies



OPERATING FREQUENCIES RANGE

PSR: 1250-1350 MHz

SSR: 1030 MHz (interrogation)
1090 MHz (response RBS)



TRANSMITTER PULSE POWER

PSR: 4kW

SSR: 1kW



DETECTION RANGE OF THE TARGET WITH RCS=2,5 M², P=0,5

MIN RANGE

PSR: 1000 m
SSR: 2.5 km

MAX RANGE

PSR: 100 km
SSR: 220 km



RESOLUTION

BY RANGE

PSR: 250 m
SSR: 150 m

BY AZIMUTH

PSR: 5°
SSR: 5°



POWER CONSUMPTION

< 10KW

CAPABILITY

- The radar implements automatic tracking of the trajectories of airborne objects. ASR-23L provides data receipt from other radars, exchange of radar information occurs via the provided data exchange channels in the agreed exchange protocol
- Only solid-state components are used in the transmitting and receiving equipment of the radar. The transmitter is built on a modular basis and provides a passive failure - failure of a separate module leads only to partial longitudinal decalage of the radar parameters
- The radar is designed for round-the-clock operation and is equipped with an uninterruptible power supply that ensures the operation of the radar for up to 10 minutes in the event of a power failure
- The air situation is automatically documented, providing the ability to reproduce the documented data in passive and interactive modes
- The ASR-23L has credible protection against impulse and active noise interference. The interference situation is presented on the operator's screen





KHORTYTSIA-M

MOBILE COMINT COMPLEX

Mobile comint complex is designed for automated detection, demodulation, decoding, recording, storage, and analysis of complex signals in the operating frequency range, direction finding, real-time transmission of radio signals, including with FHSS signals. Able to work autonomously or control the operation of other comint facilities as part of comint network



MAXIMUM ANALYSIS BANDWIDTH
80 MHz



OPERATING FREQUENCY RANGE
25-6000 MHz



NUMBER OF INDEPENDENT CHANNELS
5



SINGLE FREQUENCY DYNAMIC RANGE
≥ 80 dB



SCANNING SPEED
60 GHz/sec



APPROX. EFFECTIVE RANGE
45 km



FHSS SIGNALS
Search, direction finding, demodulation

Number of radio networks for processing in scan mode

up to 4096

Scanning speed of the frequency bank in scan mode (except networks with fhss)

over 100 frequencies/sec

PLASTUN-RP3000

MOBILE TACTICAL DIRECTION FINDING SYSTEM

DESIGNED FOR:

- direction finding of communication systems, detection of signals, including FHSS signals
- determining the location and displaying the coordinates of the radio emission source in real-time to create and update the electronic environment map
- real-time data exchange about the location of radio sources and their parameters to form the electronic environment map



OPERATING FREQUENCY RANGE
25-3000 MHz



FREQUENCY RESOLUTION IN OVERVIEW MODE
12,5 kHz



REAL-TIME BANDWIDTH
20 MHz



DYNAMIC RANGE
over 80 dB



MANPACK SET WEIGHT
max 39 kg



MINIMUM DF TIME
less than 15 ms



SCANNING SPEED
over 2 GHz/sec



FHSS SIGNALS INTERCEPTION
yes



AUTONOMOUS WORK
up to 8 hours



AVERAGE INSTRUMENTAL DF ERROR

within 25-90 MHz	-15 + 2 dB
within 90-525 MHz	-5 + 1 dB
within 525-3000 MHz	-3 + 2 dB

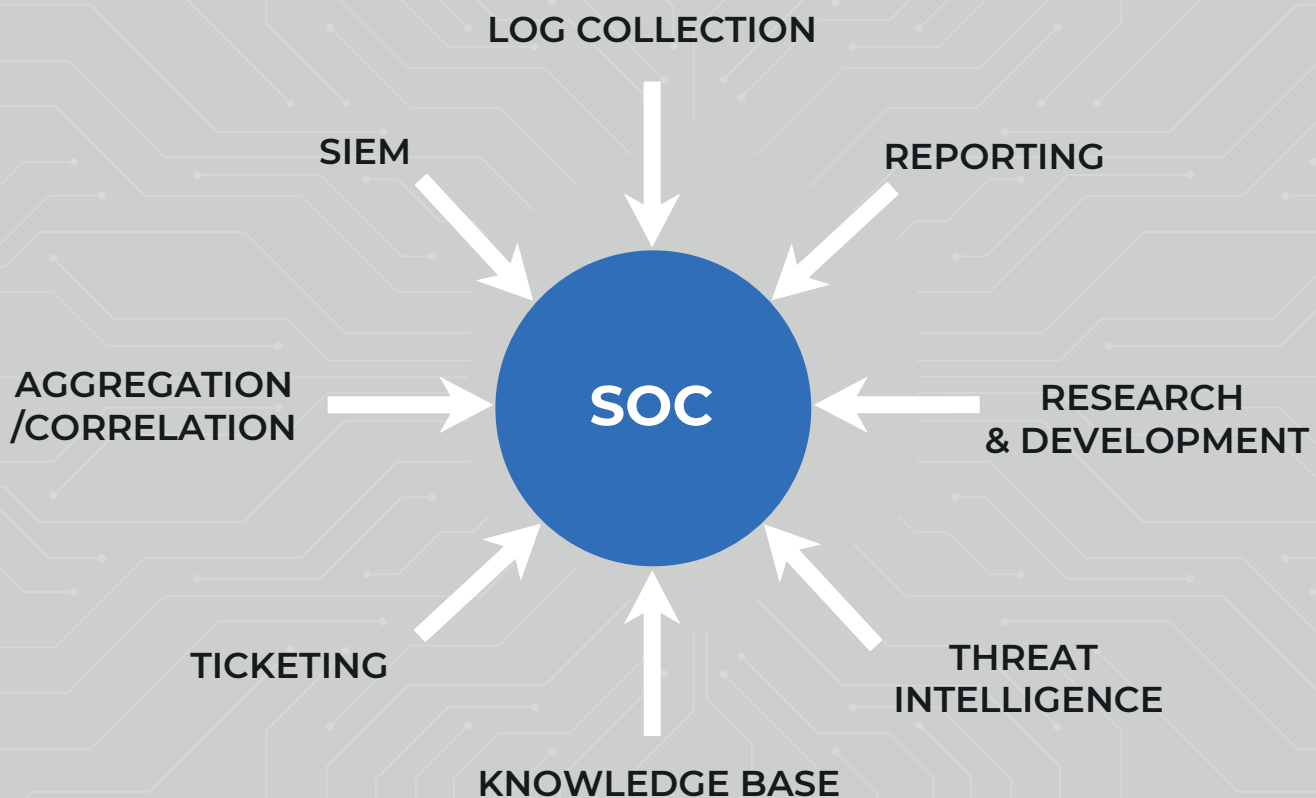
RED TEAMS

- Imitation of actions of intruders concerning the purpose
- Violation of the security of target system or process through physical or digital penetration
- To remain undetected, as long as possible for Blue Team
- Setting up a max possible number of channels for unloading information and managing the target system
- Continuous use of the best and non-standard practices to compromise the system

COORDINATING CENTERS AND SOCS

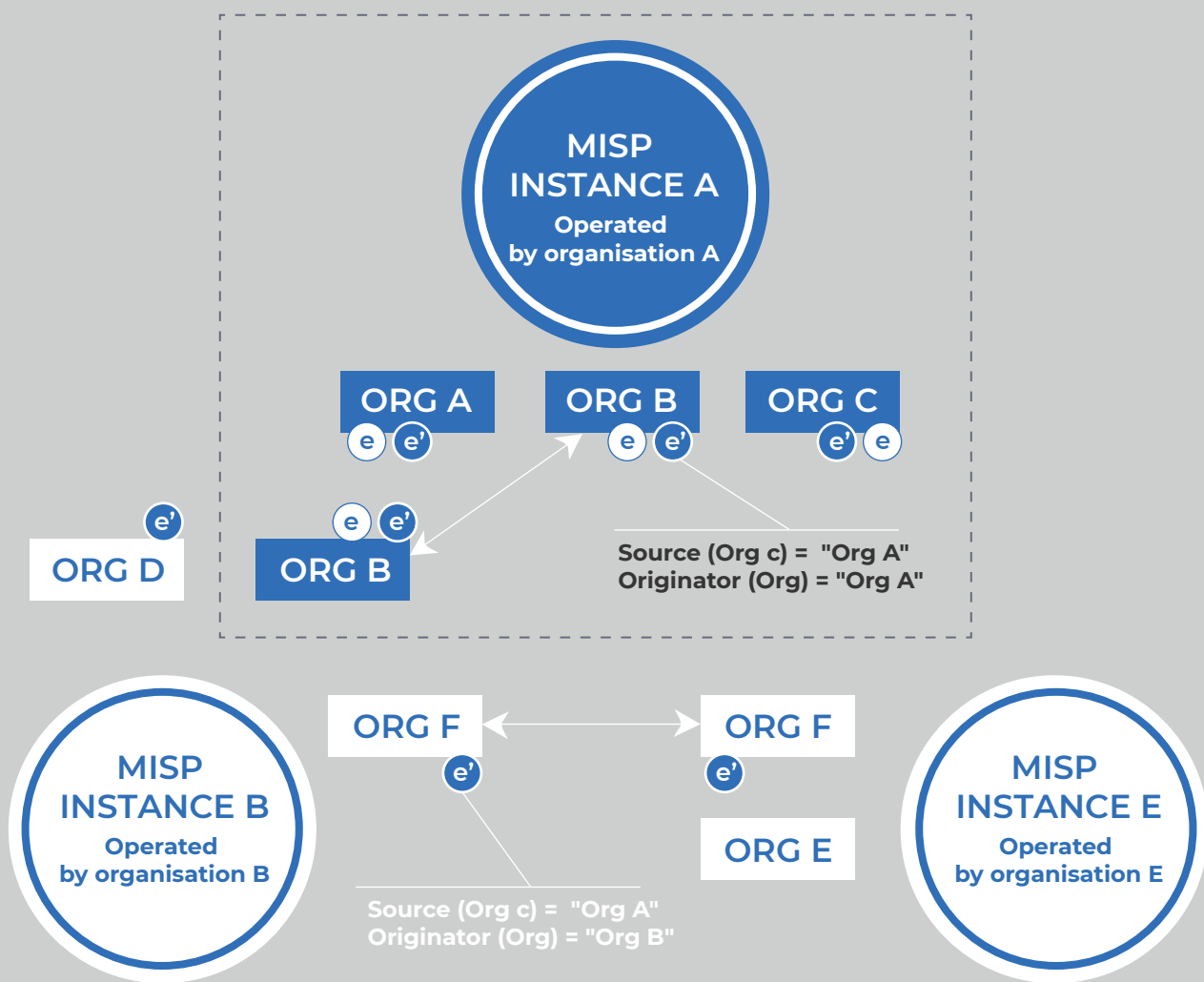
- Understanding each phase of the incident and adequate response
- Detection of suspicious traffic anomalies and detection of signs of compromise of the system
- Preparation of the incident report, adjustment of response algorithms to the incident
- Detection of command and control servers of Red Team/Attackers (C&C or C2) and blocking their connection to the target
- Analysis and forensic expertise in systems of each sector

SOC BUILDING FOR EACH SECTOR





SECTORS COMMUNITY



LEGEND

	Community A
	Org X Organisation inside the community A
	Org X Organisation outside of the community A
	e MISP event shared to the community A only
	e` MISP event created by Org A and shared as "Connected communities"
	Synchronisation between two MISP instances

ZSU-23-4 SHILKA MODERNIZATION

SELF-PROPELLED AIR DEFENSE SYSTEM

THE DEEP MODERNIZATION INCLUDES:

- Replacement of the 1RL33M radar with a multifunctional radar with a digital antenna array
- New optical location system and missile channel
- Replacement of the computing device with a digital computer system
- Integration of new combat weapon control algorithms
- Replacement of the gas turbine unit with a more economical power supply unit
- Replacement of other units



The core update is the Rokach AS digital array radar. It can work in round-the-clock mode, search and provide auto attendance. The radar confidently detects and accompanies even UAVs with an effective scattering surface of about 0.01 square meters at distances up to 7 kilometers

The new radar station with a digital array antenna can quickly identify targets both independently and according to external targets. Also, it allows to accompany several goals simultaneously that are within the range of the focus, and in the case of a single target attack, it is almost instantaneous to proceed with the preparation of firing the next target

2K22 TUNGUSKA MODERNIZATION

SELF-PROPELLED AIR DEFENSE SYSTEM

Ukraine offers an upgrade for the Soviet-designed 2K22 Tunguska self-propelled air defense system. The upgrade includes life extension overhaul and replacement of the key subsystems and assemblies, including the cannon, missile launcher, and carrying chassis

A comprehensive package additionally addresses upgrades to the electronics set, ergonomics, and operator workstations, the electronic-optical system with a video processing capability





2K12 KVADRAT MODERNIZATION

SAM SYSTEM

Engagement Radar Vehicle (SURN) 1S91-2L
The Upgraded 2K12M1-2L Surface-To-Air (SAM) System (Kvadrat-2L) features improved performance and extended functional capabilities due to new algorithms of data processing and display, digital signal processing with software-based MTI, and automatic data read-out and processing. 2K12M1-2L is offered as the upgraded follow-on to 2K12M1



S-125 PECHORA MODERNIZATION

SAM SYSTEM

The modernized S-125M-E1 AAMS is designed to destroy modern and advanced air assault means

OTHER ANTI-AIRCRAFT MODERNIZATION OPTIONS:

- 2K12 KUB
- 9K33 OSA
- 9K37 BUK
- S-300 Family
- S-60
- S-75
- S-125
- IGLA-1M
- KOLIBRI



2K12 KUB



9K33 OSA



9K37 BUK



IGLA-1M

MI-2 MSB-1

LIGHT HELICOPTER

The Mi-2MSB-1 model meets the advanced technological development of aviation and has high-performance characteristics and maneuverability. The application of the newest flight and navigation complex guarantees the safety of passengers, crew, and flights. The helicopter is designed to perform the following types of work:

- VIP transportation
- Passenger transportation
- Tourist services
- Surveillance on land (including in the mountains) and at sea - on-request option
- Rescue on land (including in the mountains) and at sea - on-request option
- Medicine - on-request option
- Fire extinguishing - on-request option
- Other (special application) - on-request option



ENGINE
2 x Ai-450B



MAX TAKEOFF WEIGHT
3 550 kg



FUEL TANK
1076 l



PRACTICAL ALTITUDE
4 000 m



MAX SPEED
220 km/h



CREW
1-2



STATIC ALTITUDE
1620 m



CRUISING SPEED
180 km/h



PASSENGERS
6

MSB-8

MULTIPURPOSE HELICOPTER

The MSB-8 multipurpose commercial helicopter has been designed according to a single-rotor (classic) configuration with an av tail rotor.

PURPOSE:

Depending on the configuration of purpose-designed equipment, the helicopter can solve a wide range of commercial tasks as follows:

- Transportation of passengers;
- Transportation of cargo inside cargo/passenger compartment and utilizing external load sling system;
- Search and evacuation of casualties due to emergency;
- Emergency transportation of patients to medical providers;
- Heliborne administering medical aid;
- Fire extinguishing;
- Very important person transportation



ENGINE
2 x TV3-117VMA-SBMIV



SERVICE CEILING
7500 m



CRUISING SPEED
270 km/h



EMPTY WEIGHT
7500 kg



OPERATING RANGE
1030 km



CREW
2-3



MAX TAKEOFF WEIGHT
15000 kg



HELICOPTERS

AEROCOPTER AK1-3










LIGHT HELICOPTER

The AEROCOPTER AK1-3 is a multipurpose utility helicopter. It is supplied as a complete ready-to-fly-aircraft

The AK1-3 was designed to comply with the Ukrainian AP-27 rules, which are similar to the European Aviation Safety Agency CS-27 standard

The aircraft features a single main rotor with a tail rotor, a two-seats-in side-by-side configuration enclosed cockpit, skid-type landing gear, and a four-cylinder, air-cooled, four-stroke, 156 hp (116 kW) Subaru EJ25 automotive engine



 ENGINE 1 × Subaru EJ25, water-cooled, 116 kW (156 hp)	 CRUISING SPEED 160 km/h (99 mph, 86 kn)	 EMPTY WEIGHT 380 kg (838 lb)
 ROTOR DIAMETER 6.84 m (22 ft 5 in)	 MAX SPEED 180 km/h (110 mph, 97 kn)	 GROSS WEIGHT 650 kg (1,433 lb)
 FUEL CAPACITY 75 litres	 RATE OF CLIMB 8 m/s (1,600 ft/min)	 SEATS 1 pilot + 1 pass.

SL-231 SCOUT

LIGHT MULTIPURPOSE HELICOPTER

The SL-231 SCOUT Helicopter is a Ukrainian multipurpose light three-seater helicopter of a classic design. The helicopter is designed under AP-27 standards

The SL-231 is powered by the supercharged 225 hp (168 kW) Lycoming IO-379 engine and flies at a comfortable cruising speed of 101 kt (187 km/h) and a maximum speed of 113 kt (209 km/h). It has an airframe constructed of riveted duralumin alloy, and energy-absorbing landing gears and seats. The digital cockpit is provided by two Nesis displays produced by the Slovenian company Kanardia, which specializes in the design and manufacture of avionics for ultralight aircraft and gyrocopters



 ENGINE Lycoming IO-379 225 hp (168 kW)	 SPEED cruising – 187 km/h max – 209 km/h	 GROSS WEIGHT 882 kg
 FLIGHT RANGE 600 km	 LENGTH 9.0 m	 EMPTY WEIGHT 450 kg
 FLIGHT DURATION 3.2 hours	 CEILING WITHOUT GROUND EFFECT 2400 m	 SEATS 1 pilot + 2 pass.

AN-26 OVERHAUL AND MODERNIZATION

MEDIUM MILITARY TRANSPORT AIRCRAFT

Medium military transport aircraft is equipped with a big cargo door, lowering cargo ramp, mechanization facilities for handling and is intended to transport cargoes, military equipment, personnel, injured and ill persons, as well as for air landing of personnel and military equipment



AN-32 OVERHAUL AND MODERNIZATION

MILITARY TRANSPORT AIRCRAFT

Light military transport multi-purpose aircraft can be operated in various climate conditions, including hot climate (up to +50°C) and from the mountain airfields. The main aircraft's purpose is to transport cargoes over short and medium-range air routes. It can be used for carrying military personnel, aerial delivery of paratroopers, and palletized and non-palletized cargoes. Its ambulance version can be used in missions of the State Emergency Service



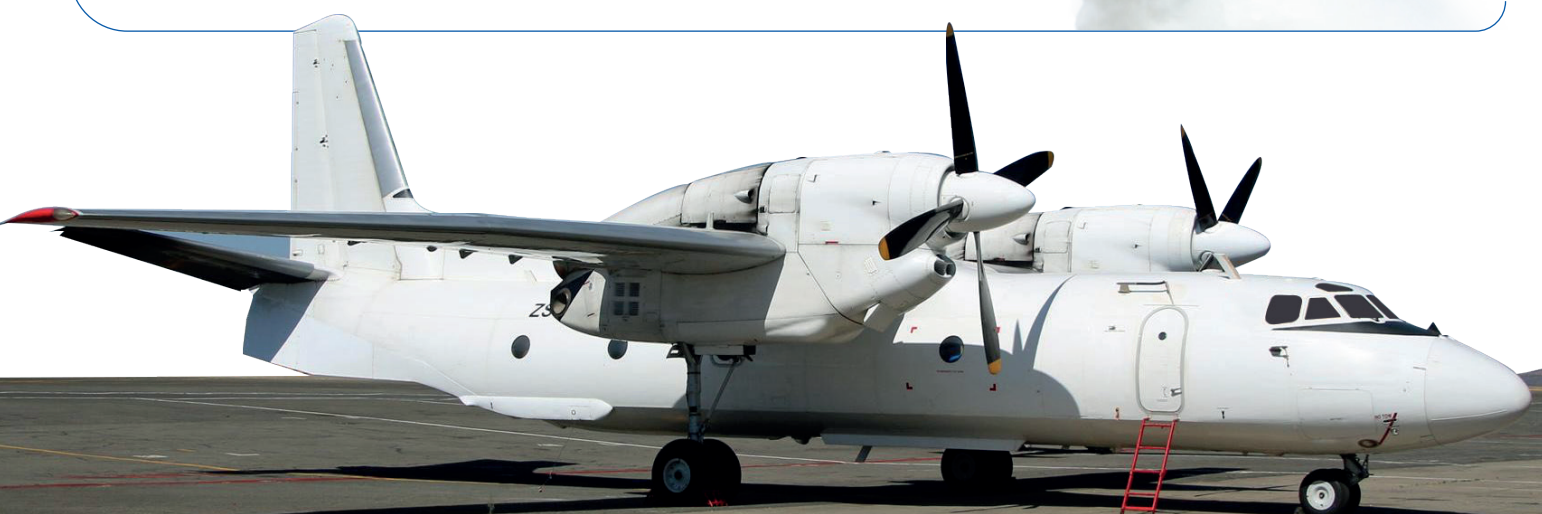
The aircraft has high maneuverability for flights to mountain-based airfields with difficult approach conditions

AN-32P MODERNIZATION

FIRE-FIGHTING AIRCRAFT

The aircraft is designed for firefighting by draining-off the extinguishing liquids. It is also capable of delivering and airdropping the smokejumpers and special equipment, fire-extinguishing means to the fire sites

When dropping 8 t of extinguishing liquid out of two tanks from an altitude up to 50 m at speed of 260 km/h, a water spot of 120-160 m long and 10-35 m wide is formed on the ground





MI-8, MI-17, MI-171, MI-24, MI-35 MODERNIZATION

- Replacement of pilot's analog sighting complex with a digital sight ASP-17VPM, which significantly enhances the accuracy of application of the airborne weapons
- Installation of a Laser Reticule Shaping System, ensuring the application of unguided weapons at nighttime using Night Vision Goggles (NVG). Using of electro-optical system, sight ASP-17VPM and Laser Reticule Shaping System in complex ensures the around-the-clock application of all helicopter weapons
- Adaptation of the internal and external lights for NVG compatibility to ensure helicopter round-the-clock application
- Equipping of pilot's and operator's cockpits with GPSMAP 695/696 global positioning system, intended for determination and display of navigation parameters, helicopter current position, which ensures en-route flights taking into account the terrain digital model
- Fitting of pilot's cockpit with an optional VHF radio to ensure two-way communication between the helicopter and ground stations and other helicopters within the band of 118.000-136.975 MHz and frequency space 8.33/25 kHz
- Equipping of the helicopter with a portable ELT (emergency locator transmitter), capable to transmit SOS signals on emergency frequencies: 406,028 MHz, 121,5 MHz and 243,0 MHz
- High-level active protection of helicopter from IR guided missiles of different types (Stinger, Igla, Igla-1, R-60, R-60M, R-73, Sidewinder) is achieved by means of fitting of the optronic suppression station Adros KT-01AB as well as the chaff and flare dispenser Adros KUV 26-50 (26 mm and 50 mm in caliber)



MI-8



MI-17



MI-24



MI-35

AIRCRAFT MODERNIZATION



SU-24



SU-25

OTHER AIRCRAFT MODERNIZATION OPTIONS

AN-24

MIG-29

IL-78

IL-76

SU-27

AN-32



IL-76

SHOOLIKA Mk6

AIRSTRIKE DRONE

The Shoolika Mk6 drone is designed to drop various types of munitions onto the enemy, including 82 mm bombs, RKG granade and PTAB-2,5Ko

Using two independent Here3 GNSS (as primary external compasses) is a cost-effective GNSS that supports RTK mode. Positioning accuracy up to one centimeter in an ideal environment. The drone has protection from GNSS jamming and spoofing attacks



OPERATING RANGE
up to 10 km



FULL WEIGHT
21 kg



MAX PAYLOAD
6 kg



CRUISE SPEED
54 km/h



TIME IN FLIGHT
25-45 min

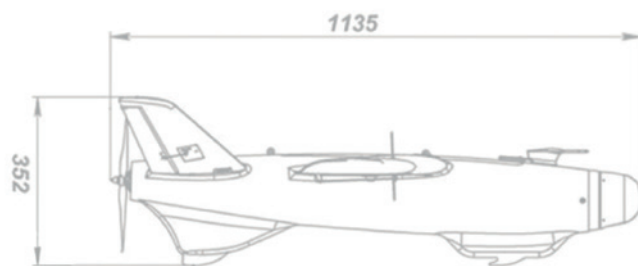


FLIGHT ALTITUDE
400 – 600 m

CICONIA

UAV COMPLEX

CICONIA is a complex of autonomous remote-controlled UAVs, designed for various tasks such as aerial reconnaissance, patrolling, area mapping with the possibility of online information transfer, and obtaining accurate geographical coordinates in real-time mode. Included autonomous flight. Operation in difficult weather conditions



AREA OF APPLICATION:

- Aerial reconnaissance
- Adjustment of artillery fire
- Border surveillance
- Automation and troop control
- Mapping



POWER UNIT
electric



TEMPERATURE RANGE
from -20 to +55 °C



TAKEOFF WEIGHT
5,5 ± 0,3 kg



CRUISE SPEED
60-70 km/h



WIND RESISTANCE
up to 20 m/s



FLIGHT TIME
2-2,5 h



MAX FLIGHT ALTITUDE
1500 m



OPERATING RANGE
100 km



DIMENSIONS
1980 X 352 X 1135 mm



RAM II

UNMANNED AERIAL SYSTEM

RAM II UAS is high-precision combat loitering unmanned aerial system. It is designed to execute precise effective strikes on enemy forces and to minimize collateral damage when used in the urban area. The drone is equipped with a gyro-stabilized Full HD camera with 10x optical zoom for easy target identification. The main feature is an active visual target tracking system, that allows to lock on the target using real-time video from the onboard video camera and follow the target until the impact. RAM II UAV is powered by a quiet electric engine and has a low noise signature, anti-jamming features and encrypted data link to maximize the security of the mission. Fully loaded combat UAV with 4 kg warhead can operate in a range of 30 km from the launch point and complete both surveillance and combat missions



ENGINE
electric



OPERATING TEMPERATURE
from -20 to +40°C



LENGTH
1450 mm



CRUISING SPEED
70 km/h



MAX TAKEOFF WEIGHT
9,8 kg



HEIGHT
349 mm



OPERATING RANGE
60 km



PAYLOAD WEIGHT
3 kg



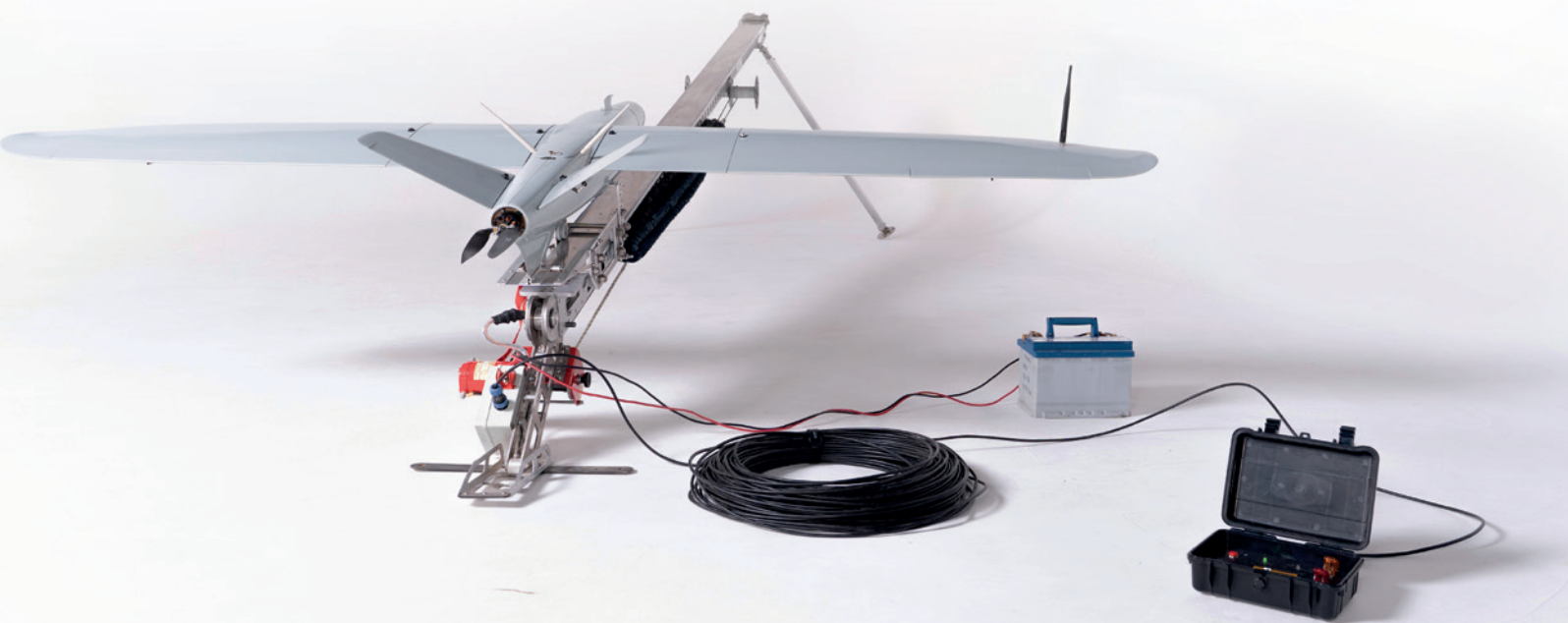
WINGSPAN
2584 mm



RADIO RANGE
30 km



MAX FLIGHT TIME
40 min



SOKIL-300

UAV COMPLEX

SOKIL-300 is designed for reconnaissance, target identification issuing, and striking at operational and tactical depth. It can also be used for sea patrol

SYSTEM COMPOSITION:

- UAV
- Mobile command post
- Guided missiles in TLC (RK-2P, RK-2M, RK-10)
- Kit of spare parts and special equipment for the system preparation and maintenance



ENGINE

Rotax 914UL
(AI-450 T2)



PAYLOAD

up to 300 kg



FLIGHT TIME

up to 26 h



CRUISE SPEED

150–300 km/h



TAKEOFF WEIGHT

1130 kg



WINGSPAN

14 m



MAX FLIGHT ALTITUDE

9100 m



MAX FLIGHT RANGE

3300 km



LENGHT

8,57 m

PUNISHER

AIRSTRIKE UAV

The Punisher UAS is a high-precision alternative to long-range artillery or missile weapons for the destruction of enemy targets at distances of 25 / 30 / 35 / 40 / 45 km. The complex allows to destroy targets from the "first shot". Has a predicted localization of impact. Due to its characteristics, it minimizes the risk of possible losses among non-combatants



OPERATING RANGE

45 km



PREPARE TO START

15 min



MAX FLIGHT ALTITUDE

400 m



MAX SPEED

190 km/h



RELOAD

3 min



WIND RESISTANCE

up to 25 m/s



WEAPONS

UB-75HE – unguided bomb
high-explosive caliber 75 mm

WEIGHT

2 kg

DIAMETER

75 mm

LENGTH

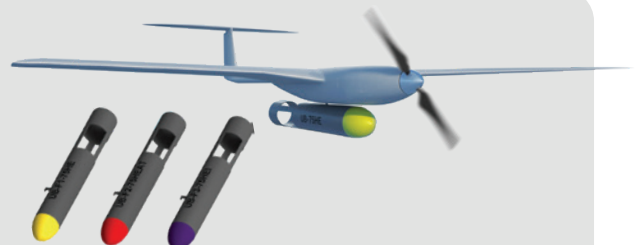
500 mm

IMPACT

FUSE

OPTIONAL

- Cumulative
- Thermobaric
- Guided

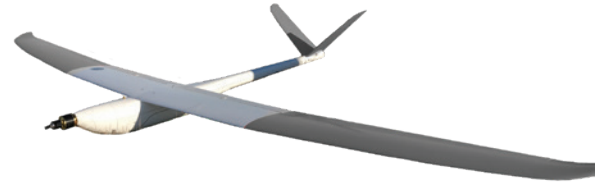









SPARROW LE

UNMANNED AERIAL SYSTEM

Has a glide aerodynamic classical shape with V-tail, which ensures long flight time and cost-effectiveness during the combat tasks performing. Equipped with gyro-stabilized and controllable on two axes and focus camera and a thermal imager. If required, it is equipped with specific sensors: a photo camera, a relay, a dosimeter, and other sensors. The frame is produced from specific composite materials, which makes it less visible for radars and thermal imagers. Vehicle dimensions and silence make it almost invisible at cruise altitude



 ENGINE electric	 CRUISE SPEED 60-110 km/hour	 LAUNCH METHOD by hand
 MAX TAKEOFF WEIGHT 7 kg	 FLIGHT TIME 3 – 4 hours	 METHOD OF LANDING on a parachute / by air
 OPERATING RANGE 250 km	 MAX FLIGHT ALTITUDE 5000 m	 WINGSPAN 3 m

RAYBIRD 3










UNMANNED AERIAL SYSTEM

Small unmanned aerial system for different long-range missions, ISTAR solutions, and SAR applications.

Man-portable (one-box) system ready to be deployed in minutes. The modular flying platform allows the changing of various function modules easily. Payload packages can alternatively include radio relays and electric warfare/countermeasure equipment.

Vertically integrated design and production processes allow us to manufacture systems to the client's needs. This also provides top-notch maintenance during UAS exploitation and enables modifications as client's needs evolve



 TAKEOFF WEIGHT 21 kg	 CRUISE SPEED 120 km/hour	 LAUNCH METHOD from the catapult
 MAX FLIGHT ALTITUDE 3000 m	 OPERATING TEMPERATURE from -20°C up to +45°C	 METHOD OF LANDING on a parachute
 FLIGHT TIME more than 24 hours	 OPERATING RANGE video link — up to 140 km in aut. mode — 2500 km	 WINGSPAN 2,9 m



MAGURA V5

UNMANNED SURFACE VESSEL


The Maritime Autonomous Guard Unmanned Robotic Apparatus (MAGURA) V-type is next-generation multi-role unmanned surface vessel (USV) developed in Ukraine


The MAGURA V5 can perform multiple operations, such as surveillance, reconnaissance, patrol, search-and-rescue, mine warfare, naval fleet security, combat missions

The MAGURA V5 developed using advanced design techniques. The hydrodynamic hull and sleek profile of the V5 allow it to travel covertly with superior maneuverability

It is an affordable solution that is easy to launch from any remote location. The unmanned operation of the V5 minimizes manpower requirements for missions, reducing potential fatalities when operating in harsh conditions




 **LENGTH**
5500 mm

 **DRAFT**
400 mm


 **RANGE**
450 nm

 **WIDTH**
1500 m

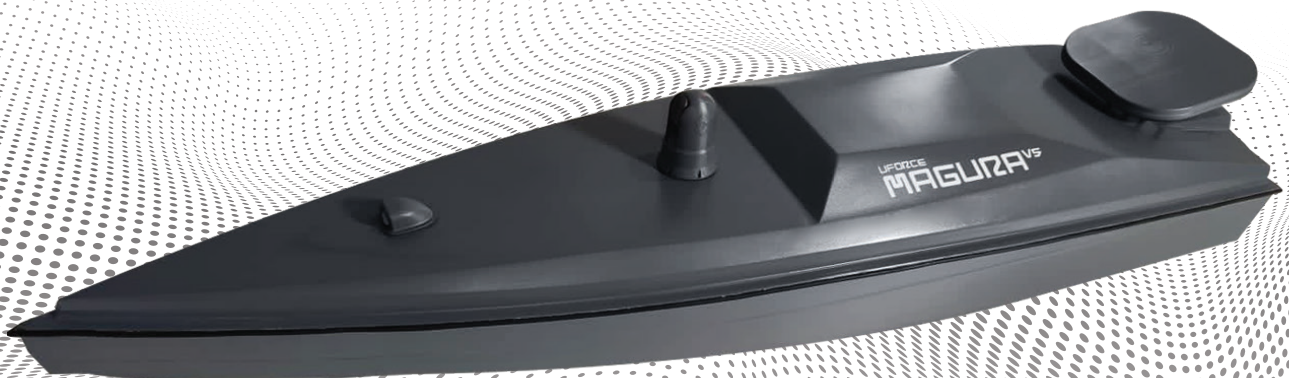
 **CRUISE SPEED**
22 kn

 **LOAD CAPACITY**
320 kg

 **HEIGHT ABOVE WATERLINE**
500 mm

 **BURST SPEED**
42 kn

 **CONNECTIVITY**
mesh radio with air-based repeater or SatCom



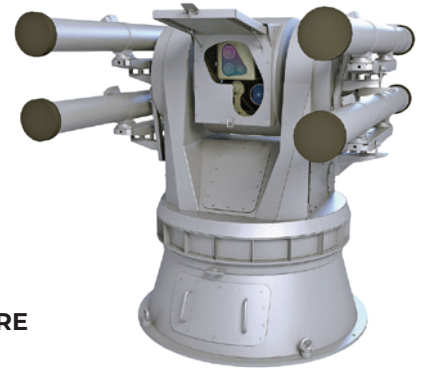


NAVAL WEAPON SYSTEMS

BAR'ER-VK

NAVAL MISSILE GUIDED WEAPON SYSTEM

BAR'ER-VK Naval Missile Guided Weapon System is designed to destroy ships as well as coastal moving and stationary modern armored targets with missiles RK-2V



MAXIMUM FIRING RANGE
not less than 7000 m



OPERATING TEMPERATURE
from -40°C up to +60°C



TARGET DETECTION RANGE
10 — day, 7 — night



WEIGHT OF SYSTEM
1100 kg



FLIGHT TIME TO MAX RANGE
62,00 m

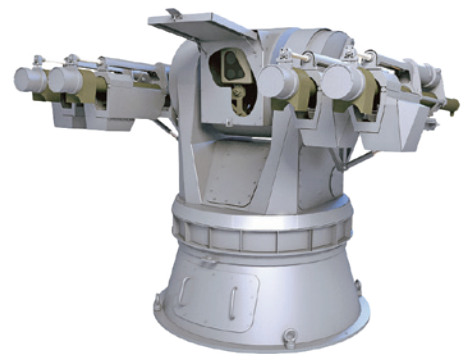


WEIGHT OF MISSILE
47,2 kg

ARBALET-K

NAVAL SHORT RANGE AIR DEFENSE SYSTEM

ARBALET-K naval short-range air-defense missile system is designed to destroy jet, propjet, and propeller-driven aircraft and helicopters at head-on and pursuit courses, under conditions of a target direct visibility using surface-to-air missile of Igla type



TARGET DESTRUCTION RANGE
500-5000 m



OPERATING TEMPERATURE
from -40°C up to +60°C



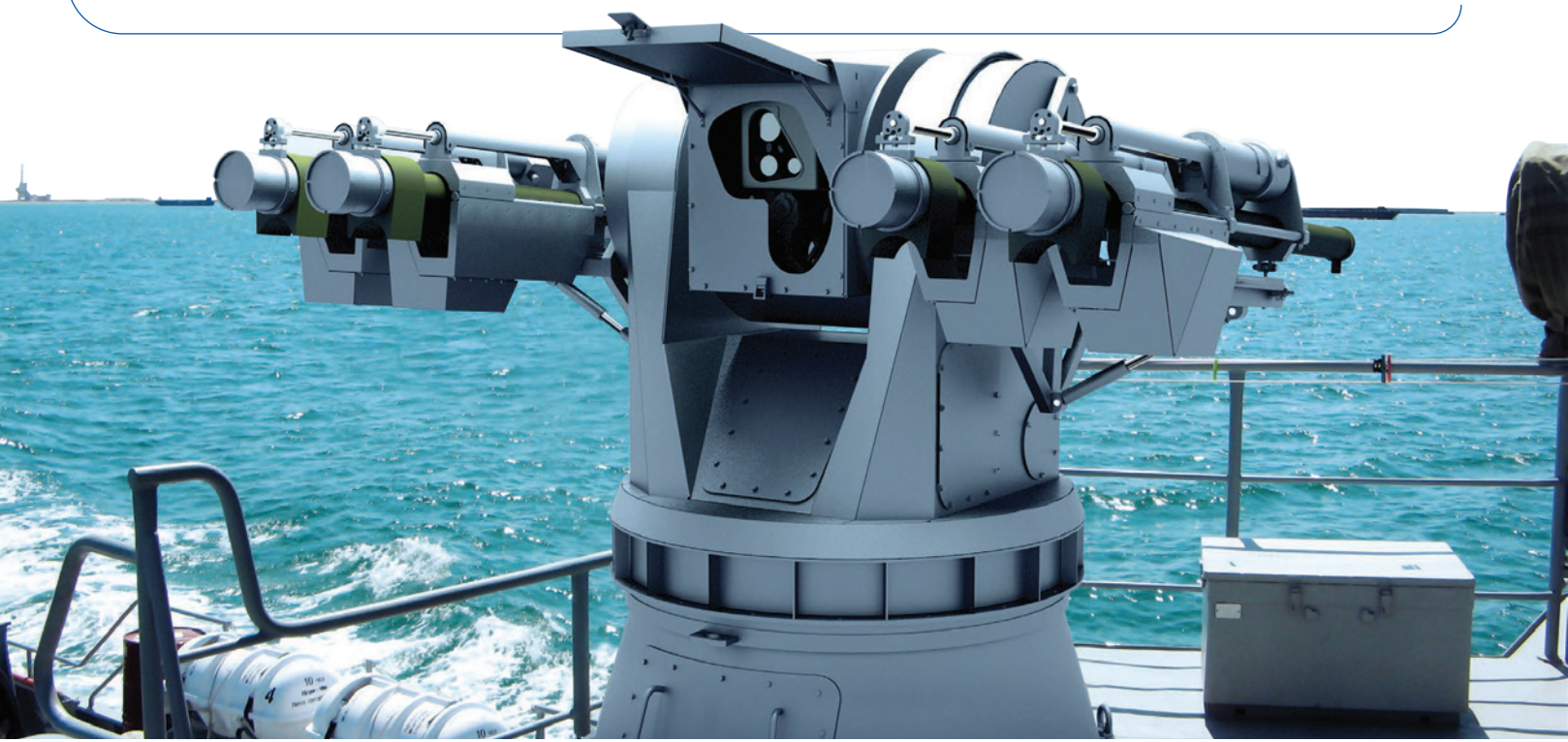
TARGET DETECTION RANGE
10 — day, 7 — night



OVERALL DIMENSIONS
1700 X 1856 X 1876 mm



WEIGHT OF SYSTEM
1020 kg



SENS-2

OPTICAL ELECTRONIC SYSTEM

It is designed for surface visual monitoring, target detection and fire control



MEASURED RANGE

from 100 to 7000 m



MAXIMUM SPEED OF TRACKED TARGETS AT ZERO PARAMETERS

aerial — 0-700 m/s, marine — 0-60 units

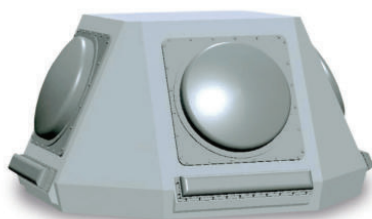


RADAR AND NAVIGATION EQUIPMENT AVAILABLE:

- Naval automated tactical data system
- Multibeam active array surveillance radar station
- Optical electronic system of the provision of helicopter take-off, homing, and SAGA ship landing
- Sarmat marine optoelectronic fire-control system of small and middle artillery caliber
- Sarmat-2 optoelectronic fire control system
- Mineral-ME multifunctional target designation radar system
- Sonar Station MG – 361 ("Centaur")
- Delta naval 2D surveillance solid-state radar
- Meganom shipborne over-the-horizon passive radar system
- Naval surveillance multi-beam active phased array radar MAARS
- Burevestnik-1M radar unit
- Positiv-E ship three-coordinate radar
- Stilet-2 fire control system with active array radar
- Kaskad integrated self-defense system for small ships
- Farad naval multifunctional active-phased array radar
- KASHTAN-3M combined laser ESM/ECM system
- SELENA-X infrared search and track system
- STILET shipboard combined optical and radar tracking system



SELENA-X



FARAD



MAARS



STILET



SONAR COMPLEXES AND SYSTEMS

TRONKA-MK

HYDROACOUSTIC STATION FOR SEARCHING OF SABOTEUR UNDERWATER SWIMMERS

The hydroacoustic station is designed for searching and detection of saboteur underwater swimmers and protects from:

- Ships of different purpose on moorage at the high sea, on the move, in stationing site
- Hydrotechnical objects in ports, harbors
- Objects of oil-producing industry located in sea basins



DETECTION RANGE
up to 1000 m



ANGULAR FIELD OF VIEW
30°, 360° — horizontal



RANGE ACCURACY
1,0%



AUTO TARGET TRACKING
up to 20



AZIMUTH ACCURACY
0,8°

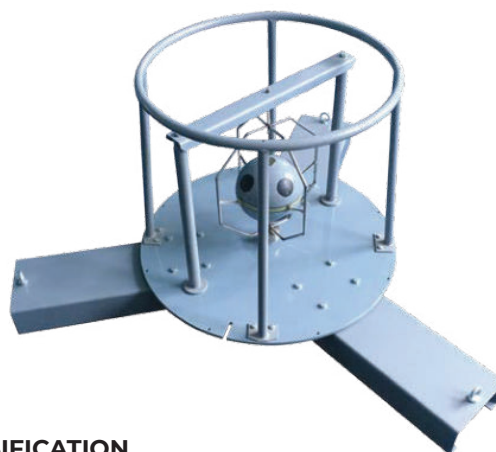


ANTENNA IMMERSION DEPTH
up to 50 m

OLYMP-3K

POSITIONAL HYDROACOUSTIC STATION

Positional cable sonars are designed for lighting purposes at depths of 40-200 m for intrusion detection in territorial waters or areas where critical facilities are situated. Such sonars operate in noise detecting mode allowing them to stay undetected



DETECTION RANGE
4 km



TARGET CLASSIFICATION
automatic



DEEPENING
40-200 m



OBSERVATION SECTOR
omnidirectional



THE AVERAGE ERROR IN THE DETERMINATION OF BEARING
5°



THE SERVICE LIFE
24 month



WEIGHT
40 kg

UAR-10

HIGH-PRECISION TACTICAL RIFLE

UAR -10 is a semi-automatic rifle with a rotary shutter and automation based on the removal of powder gases. A feature of the UAR-10 design is the permanent connection of the cocking handle to the shutter frame. This allows you to both pull out a jammed cartridge and carry out a manual delivery. The barrel, chromed from the inside, made of stainless steel, has a guaranteed resource of up to 7,000 shots



UAR-10 can be disassembled into two components, which allows to reduce its dimensions and ensures compactness during transportation. The barrel of the rifle is cantilever fixed, which ensures the stability of aiming. The upper part of the receiver and the forend are equipped with Picatinny-type rails for mounting sights and other accessories. To reduce the level of sound and flash during a shot, the rifle can be equipped with a silencer. It is also equipped with a MagPul PRS stock for 10 or 20 rounds with an adjustable cheek and a retractable buttplate



CALIBER
.308Win / 7.62x51mm



OVERALL LENGTH
940 – 1045 mm



ACCURACY
<1 MOA



BARREL LENGTH
16" – 20" / 406 – 508 mm



WEIGHT
3,8 – 5 kg



RATE OF FIRE
21 rd/min



AIMING RANGE
1200 m





UAR-15

HIGH-PRECISION TACTICAL RIFLE

UAR-15 is a Ukrainian semi-automatic self-loading rifle with a rotary bolt and automatics based on the removal of gases produced by the Zbroyar company. It is manufactured under the license of the American AR-15 rifle. The rifle has a modular design, the upper part of the receiver and the stock have Picatinny-type guides for mounting sights and other tactical accessories.

The modular design allows for easy replacement of various components: trigger, stock, pistol grip and other attachments, thereby customizing the rifle for ease of use. The UAR-15 model uses "MidLength" or "Carbine" gas systems, which ensure smooth operation of automation. The rifle is also equipped with a regular silencer, the resource of which is 10 000 shots. The weapon is characterized by high accuracy, optimized weight (3 kg), and the ability to install sights directly on the rigid receiver



CALIBER

.223 Rem / 5.56x45 mm /
7.62x35 mm / .300 AAC / 7.62x39 mm



BARREL LENGTH

10.5" - 20" (267 - 508 mm)
Stainless



ACCURACY

<1 to 2 MOA



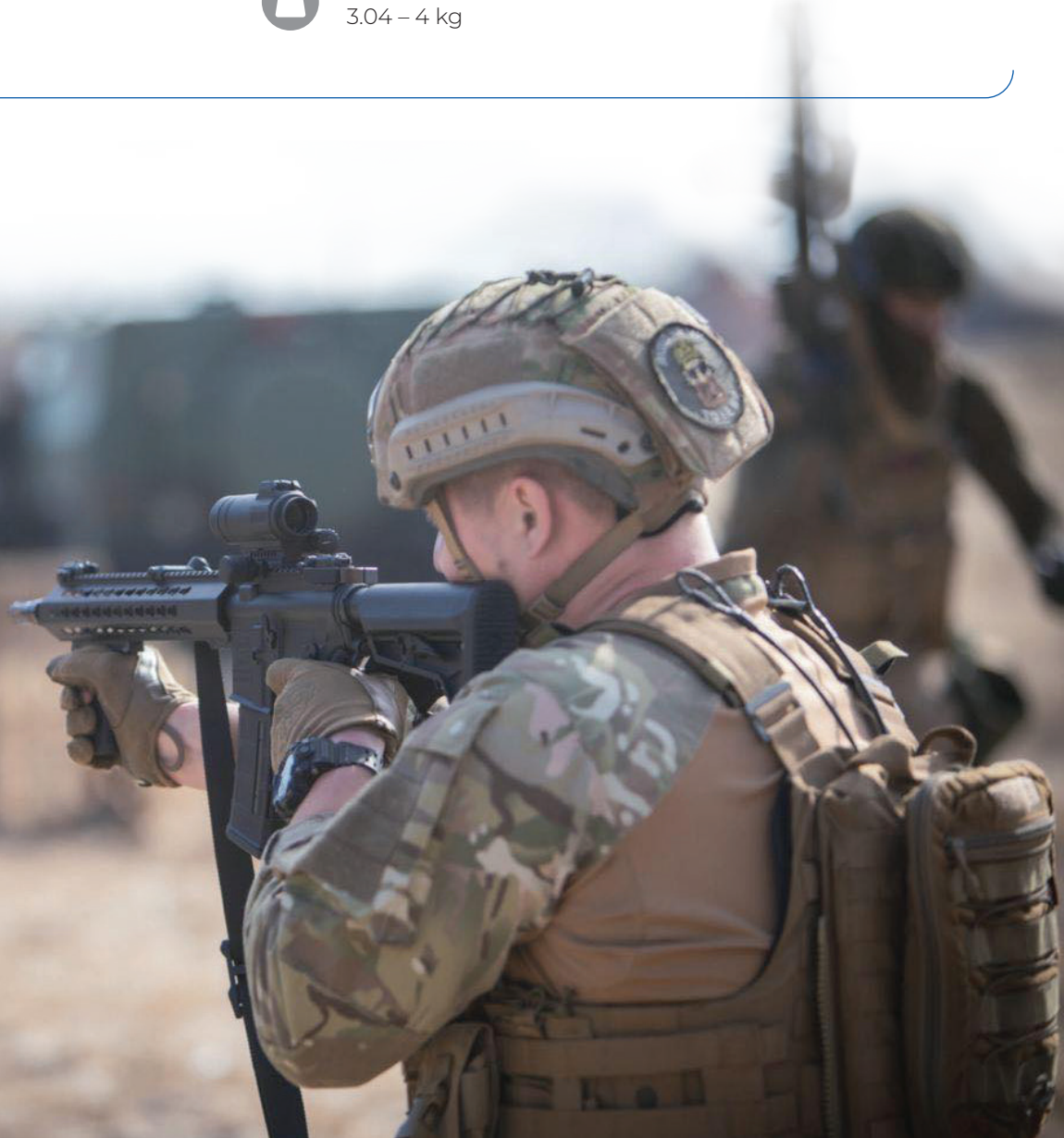
OVERALL LENGTH

810 - 1040 mm



WEIGHT

3.04 - 4 kg



VULCAN (MALYUK)

ASSAULT RIFLE

Due to its small dimensions, the Malyuk rifle can be used in SMG tactical niche. In this role, a special type of 5.45 mm ammunition is used. This type of ammo has 500 m/s speed and can be supplied with or without a steel penetrative core



Advantages of Malyuk weapon-ammo complex:

- Absence of ricochets, usual for standard 5.45 mm
- Absence of over-penetration through target body or obstacle
- Substantial decrease of felt recoil, superb weapon controllability
- Ballistics match standard on actual SMG deployment ranges (50-100 m) Behind the effective range bullet becomes safe fast
- Advanced functionality with the same weight is much more effective than simply adding new heavy components
- Ergonomically designed elements were made with speed and secure deployment in mind



FIRING RANGE
500 m



AMMO CAPACITY
30 / 45 rounds



AMMUNITION TYPE
5.45x39 mm, 5.56x45 mm, 7.62x39 mm



WEIGHT
3,8 kg



MUZZLE VELOCITY (5.45/5.56/7.62)
900 / 940 / 715 m/s



LENGTH
712 mm



RATE OF FIRE
660 rd/min



BARREL LENGTH
415 mm





7.62x51 LMG

LIGHT MACHINE GUN

- fully mechanical system (no thermostats)
- always under manual control of operator
 - AR weight, ergonomics, and manipulation
- integrated into DI AR mechanics (adjustability and bolt service life preservation)
- automatic safety integration
- no external components
- little to no impact on system weight and balance
- multi-role weapon system MG/light assault weapon/DMR
- optic, laser, accessory are included



FIRING RANGE
2000 m



WEAPON WEIGHT
8 kg



FIRE MODE
Semi (closed bolt)/ full auto



AMMO CAPACITY
10/20/25 box mag,
100 drum mag



WEAPON LENGTH
1098 mm



BARREL LENGTH
722 mm

Z-008 GEN III PRECISION

HIGH PRECISION TACTICAL RIFLE

The Z-008 gen III Precision provides maximum ways of adjustments and installation of tactical equipment. Foregrip allows to install the elongated Picatinny base for mounting night sight, lights, etc. Picatinny base can stand in foregrip at an angle of 45 degrees. Bipods can be placed far ahead. Designed for use with a day sight and backup collimator simultaneously. Sniper Magpul stock has a wide range of adjustments

The folding stock is comfortable to carry. The shooter will no doubt be pleased with the pistol grip, with emphasis. Typical accuracy sub 1/3 MOA



3 BARREL LENGTH TYPE

(Lothar Walther or Shilen barrels)

up to 27"	Overall up to 50"
up to 30"	Overall up to 52"
up to 32"	Overall up to 54"



FLUTED BARREL
Muzzle thread cap



FULLY ADJUSTABLE JEWELL TRIGGER
Suppressor



ADDITIONAL PICATINNY RAIL
Folding stock



WEIGHT
appr. 6.5 kg



SINGLE SHORT RECEIVER
Additional barrel



AMMUNITION TYPE
762x51 mm NATO



KBA-48M

82 MM CALIBER MORTAR

Designed to defeat manpower and enemy's facilities, especially those located outside the shelter: in trenches, gullies and at reverse hill slopes, to destroy fortifications. It is used in quick-reaction special units and infantry units of Land Forces

 **FIRING RANGE**
100-4000 mm

 **RATE OF FIRE**
10-15 shots/min

 **WEIGHT**
70 kg




KBA-117

AUTOMATIC GRENADE LAUNCHER

It is designed to defeat an enemy's manpower and fire weapons located in the open terrain or entrenched. It is used in a combat module mounted on lightly armored vehicles (ICVs, APCs, etc.)

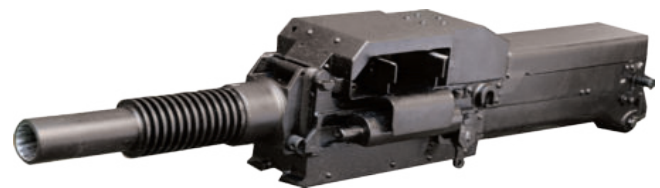
 **CALIBER**
30 mm

 **GRENADE MUZZLE VELOCITY**
185 m/s

 **RATE OF FIRE**
not less than
400 shots/min

 **LENGTH**
840 mm

 **WEIGHT**
31 kg



UAG-40

AUTOMATIC GRENADE LAUNCHER

Automatic grenade launcher with 40 mm bore shoots for a distance of over 2200 meters. It is intended for firing at enemy's infantry, light-armored vehicles, and protected shelters

 **CALIBER**
40 mm

 **HEIGHT**
210 mm

 **RATE OF FIRE**
370-400 shots/min

 **LENGTH**
960 mm

 **FIRING RANGE**
40 - 1500 m

 **WEIGHT (WITHOUT GRENADE)**
17 kg





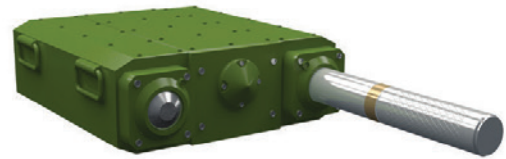
ARMOR PROTECTION SYSTEMS

ZASLON

ACTIVE PROTECTION SYSTEM

Designed to protect the stationary and moving facilities against anti-tank strike devices with a grazing and diving trajectory. The ZASLON active protection system – which has no diving trajectory:

- provides protection to main battle tanks, it can also be integrated with other armoured combat vehicles as well as being used to protect stationary installations
- has modular design
- capable to single out the targets
- autonomous, automatic and self-tested
- day-and-night, and all-weather operating



TARGET DETECTION
radar



SPEED OF DEFEATED OBJECTS
from 70 to more than 1200 m/s



POWER CONSUMPTION
0.2 kW (max)



PROTECTED AREA
± 150-180°



WEIGHT
from 50 to 130 kg
(depends on protection level)

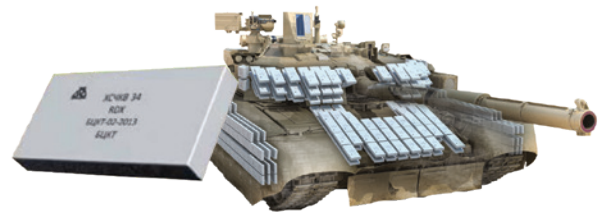


READINESS TIME
1 min

NIZH-L

DYNAMIC PROTECTION ERA

DERA «NIZH-L» is designed for protection of armored vehicles of light weight category from unitary cumulative anti-tank threats



Protection type	Dynamic, multifunctional
Reduction of the armor piercing capability of the unitary RPG different types, anti-tank guided missiles with unitary and tandem warheads, cannonball ammunition	Provided with probability min 0,8 (for zones protected by DERA blocks)
Armor penetration with grenades	Eliminated
Enhanced protection from the bullets <ul style="list-style-type: none"> · caliber 12,7 mm · caliber 7,62 mm 	at the following distances: 250 m 50 m
Weight of 1m ² of protection	200 – 250 kg

DUPLET

ANTI-TANDEM DYNAMIC PROTECTION ERA

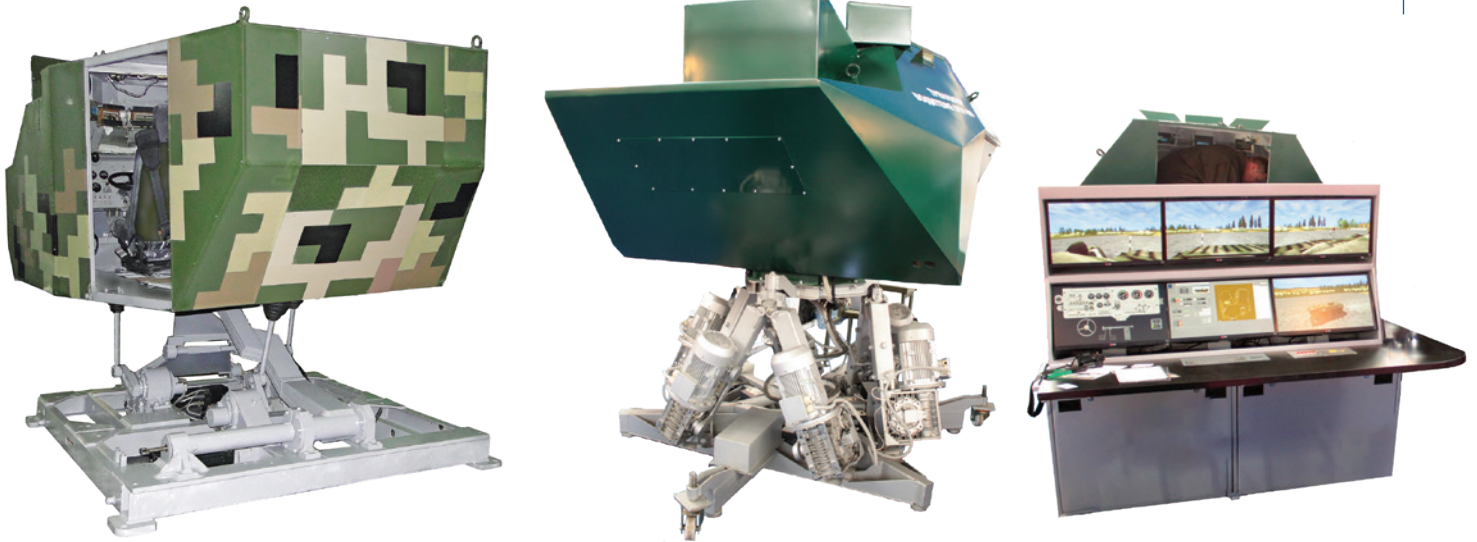
Designed for protection from unitary and tandem cumulative threats, subcaliber armour piercing shells and “cannonball” type ammunition



Protection type	Dynamic, multifunctional
Reduction of the armor piercing capability of the unitary RPG different types, anti-tank guided missiles with unitary and tandem warheads, cannonball ammunition	80-90%
Reduction of armor piercing capability of armor piercing feathered subcaliber	80-90%
Enhanced protection against B32 bullets calibers 7,62 mm, 12,7 mm, 14,5 mm	Provided (for zones protected by DERA blocks)
Weight of 1m ² of protection	400-515 kg

BTR-3E1 / BTR 4 / BTR 80 / BMP 1

INTEGRATED CREW TRAINING SIMULATOR



AVIATION

INTEGRATED CREW TRAINING SIMULATOR





SIMULATORS

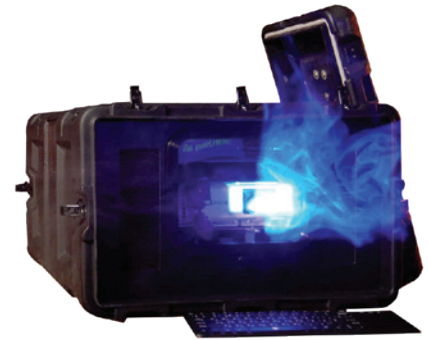
UNITS

UNIVERSAL TRAINING SYSTEM

UNITS is a universal training system for conducting fire training for soldiers according to the methodology of the Ministry of Defense of Ukraine

The mobile UNITS system allows for training in any facilities, ensuring the safety of personnel. If necessary, the system can easily be moved to another location. Training can be conducted 24/7 and with any intensity

The UNITS kit may include various types of weapons, including **AT-4, NLAW, Javelin, and Stinger**. The simulator has full-size models of weapons that are identical to real weapons. This allows soldiers to thoroughly study the weapon and train muscle memory, which will help them effectively perform combat tasks



SYSTEM MODULES



SMALL ARMS

- PM
- Fort
- AK-74
- PKK
- PKM
- SVD
- AR-15



RENADE LAUNCHERS

- GP-25
- LNG-9
- AGS-17
- RPG-7
- RPG-22
- RPG-26
- RPV
- AT-4



MANPADS

- NLAW
- Stinger FIM-92
- Javelin FGM-148
- Strila 9K32
- Iгла 9k310

ATGM

INTEGRATED CREW TRAINING SIMULATOR





**STATE FOREIGN TRADE ENTERPRISE
SPETSTECHNOEXPORT**

7, Stepana Bandery Avenue, Kyiv, 04073, Ukraine
Tel.: +38 (044) 568 50 70 Fax: +38 (044) 568 53 48
E-mail: office@ste.com.ua
www.ste.com.ua