JANUARY 2020

LAND FORCES EQUIPMENT

DEFTECH GLOBAL

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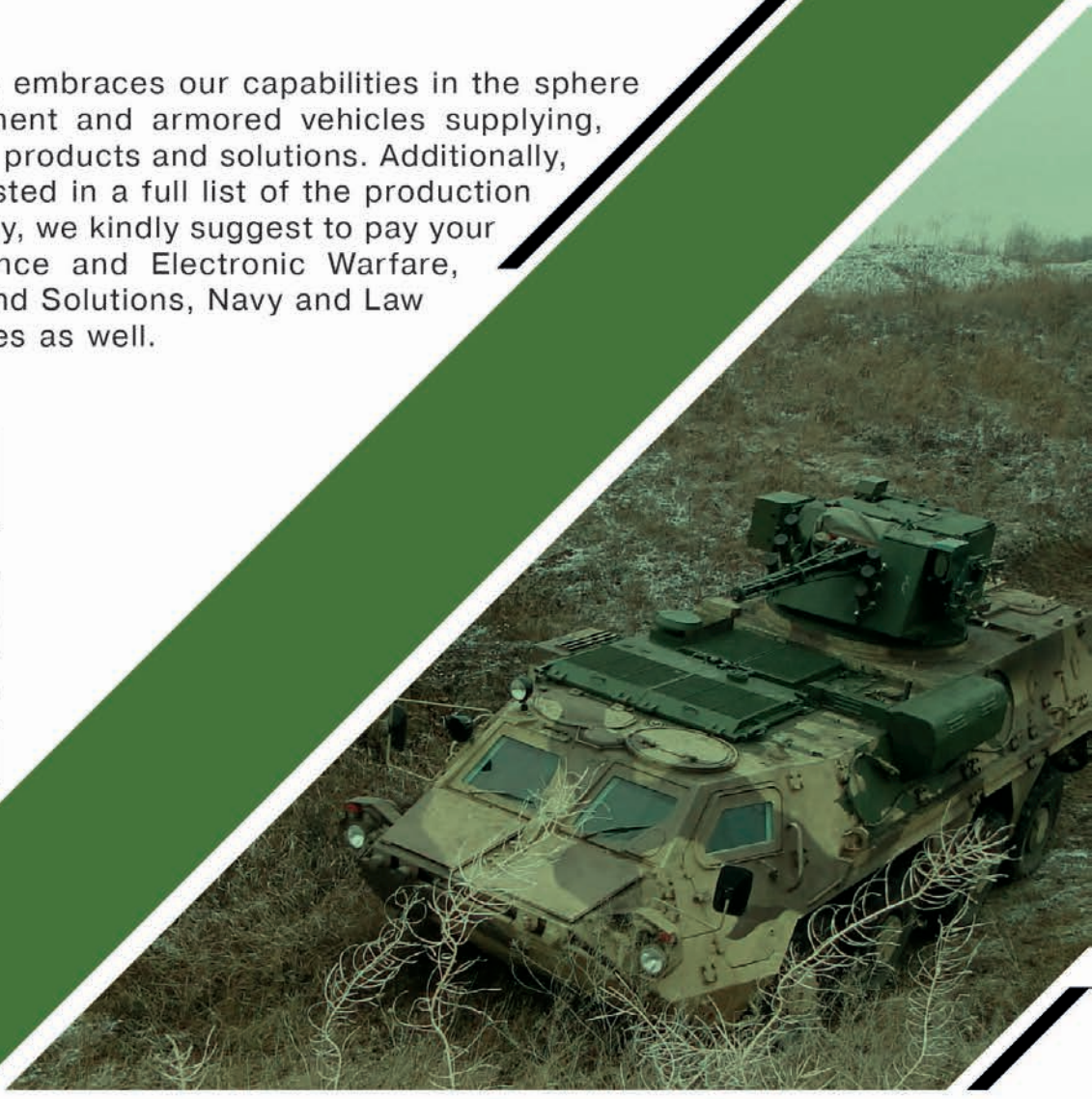
SAFETY. PROTECTION. RELIABILITY.

INTRODUCTION

Established in 2012, Deftech Global Ltd. has evolved into a renowned world-wide provider of a broad range of special purpose goods and equipment. Our company offers qualified services on repair, modernization and life extension of the relevant products. Deftech is closely connected with leading OEMs in Ukraine and post-Soviet and East European countries.

Deftech's unique experience is based on its long-existing multinational ties and numerous clients all-around the world in both governmental and private sectors. We are a customer-oriented company striving to build and maintain close companion relationships. As a reliable partner, we focus on delivering high-quality products and services at competitive prices within shortest periods.

The presented catalog embraces our capabilities in the sphere of land forces equipment and armored vehicles supplying, suggesting up-to-date products and solutions. Additionally, in case you are interested in a full list of the production offered by our company, we kindly suggest to pay your attention to Air Defence and Electronic Warfare, Aerospace Products and Solutions, Navy and Law Enforcement catalogues as well.



CONTENT

ARMOURED COMBAT VEHICLES

BTR-4 ARMOURED PERSONNEL CARRIER

BTR-4 is a new generation 8x8 wheeled armoured personnel carrier (APC).

BTR-4 APC can be deployed as an armoured vehicle in infantry units in the army or as a wheeled infantry fighting vehicle to provide fire support in combat situations. It can accomplish tasks in varied climate conditions, throughout day and night, under various combat conditions, including NBC contamination environment.

New variants of the APC are equipped with add-on armour kit to provide increased protection for personnel.

Design and features

The vehicle has a modular design and can be used for the development of a whole family of combat vehicles to suit customer or mission needs.

The layout of the BTR-4 APC is segmented into three compartments. The front compartment is for the driver and commander. The middle compartment is reserved for the engine and transmission, while the rear compartment is for troops.

Troops can enter and exit from the vehicle

BTR-4 ARMOURED PERSONNEL CARRIER

either through the back doors or through the roof hatches. The doors are provided on either side of the hull for the driver and commander.

The vehicle's wheel arrangement includes eight large road wheels. Each suspended wheel is coupled along individual axles. For direction and heading, the front pair is connected by an auto-style steering wheel.

BTR-4 is fully amphibious and can cross water obstacles at a maximum speed of 10 km/h. Maximum speed on hard surface roads is 110 km/h.

In its standard outfit the vehicle can provide protection against small arms fire and mine blasts. It can, however, be enhanced to provide immunity against 30 mm gun rounds. The vehicle is also outfitted with automatic fire suppression and NBC (nuclear, biological and chemical) protection systems.

Versions

Several versions of BTR-4 APC are being developed including BTR-4K – command vehicle and BTR-4Ksh – staff and command vehicle both with seven-man crew, BRM-4K – reconnaissance vehicle, BREM-4K – repair and recovery vehicle, BSEM-4K – medical support vehicle, MPO-4K – fire support vehicle fitted with a 120 mm gun and BTR-4 BAU – vehicle fitted with a two gun 23 mm turret.

Armaments and weaponry

The BTR-4 APC can be configured with armaments according to the customer requirements or mission needs.

The vehicle's armaments include Parus remote-controlled overhead weapon station (OWS) outfitted with 30 mm 3TM-1 automatic gun, 40 mm automatic grenade launcher, 7.62 mm machine gun and Barrier anti-tank guided missile system.

In its standard fitting, the vehicle is equipped with a 30 mm cannon, coaxial machine gun (7.62 mm) and four Konkurs or Barrier anti-tank (AT) missiles. It can also be armed with a 30 mm automatic grenade launcher instead of two AT missiles.

In addition, the vehicle can be armed with a number of armament modules such as the Grom, Shkval or BAU 23 x 2 module.

Engines

The BTR-4 can be configured with various engines. In its standard fitting, the vehicle is powered by Malyshev KhKBM 3TD two-stroke diesel engine, with a maximum power of 500 hp.

The standard fitting can be replaced upon customer's request with a four-stroke, diesel engine Deutz engine developing power output of 489 hp to 598 hp.

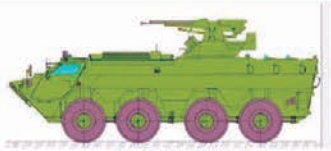
ARMOURED COMBAT VEHICLES

BTR-4 ARMOURED PERSONNEL CARRIER

SPECIFICATIONS

with "Grom" combat module

with "Shkval" combat module



with"BAU-23" combat module

with"BDM" combat module

Vehicle type	Wheeled, four-axle, all-wheel drive, closed, armoued, amphibious				
Combat module	w/o	"Grom"	"Shkval"	"BAU-23"	"BDM"
Combat weight, tons:					
-with anti-bullet protection	17.5	19.3	19	18	20
-with additional protection	21.9	23.7	23.4	22.4	24.4
Overall dimensions, mm					
Length	7760				
Width	2932				
Height	Depending on the combat module				
Ground clearance	475				
Crew	2	3	3	3	
Troops	10	8	6	8	
Number of firing ports	4				
Mobility characteristic:					
Wheel arrangement	8x8				
Type of tires	Tubeless, bulletproof, with central pressure control				
Engine type	Diesel				
Engine power, h/p	Possible version: 400-600				
Power-to-weight ratio hp/t:					
-with anti-bullet protection	28.6	25.9	26.3	27	25
-with additional protection	25	21.7	21.4	22.3	20.5
Type of transmission	Automatic or hydro-mechanical, with two-sides connection axles				
Maximum speed, km/h:					
- on road	100				
- off road	60				
- afloat	10				
Fuel consumption ltr/100 km					
- on road	70...90				
- off road	150				
Distance range, km	Minimum				
- on road	500...600				
- off road	400...500				
Maximum angle of gradient, deg.	30				
Side slope, deg.	25				
Ditch width, m.	2,0				
Vertical obstacle, m.	0,5				
Operation temperature, °C	-40 to +55				
Towing force of the winch, tons	9				
Armament:					
Gun: Q-ty & caliber, mm	-	ZTM-2	ZTM-1(2A72)	2A7M	ZTM-2(2A42)
Ammunition allowance, pcs.	-	1x30 360	1x30 360	2x23 400	1x30 360
Machine gun: Caliber, mm	-	KT-7,62 7,62	PKT 7,62	KT-7,62 7,62	KT-7,62 7,62
Ammunition allowance, pcs.	-	1200	2000	2000	2000
Grenade launcher: Caliber, mm	-	AG-17	AG-17	-	AG-17
Ammunition allowance, pcs.	-	30 150	30 87	-	30 150
Anti-tank guided missile:	-	Konkurs	Konkurs	-	Konkurs
Ammunition allowance, pcs.	-	4	2	-	2
Additional equipment:					
Weapon stabilizer	Biplanar, electromechanical				
Aiming drives of the weapon system	Electromechanical				
Sighting system "Track"	TV day-and-night with integrated laser range finder, 2 control panels				
Panoramic observation system 360°	"Panorama"				
Firefighting system	Automatic				
Air conditioner/heater, kW	10/18				
Radio-communication equipment	At the demand of the customer				

BTR-3E1 ARMOURED PERSONNEL CARRIER

The BTR-3E1 is an 8x8 wheeled armoured personnel carrier and is a latest version of the BTR-3U. The vehicle is equipped with new generation communications equipment, and two workstations.

The APC can be used to carry troops, arms and other supplies to support the armed forces in the battlefield. It can be used as a reconnaissance, combat support and patrol vehicle too.

Different variants of the BTR-3 are in service with the armed forces of Azerbaijan, Chad, Ecuador, Kazakhstan, Myanmar, Nigeria and Thailand.

The BTR-3E1 is offered in a number of configurations to meet the varied requirements of armed forces. The major variants are BTR-3E1K command vehicle, BRM-3E1 combat reconnaissance vehicle and repair-and-recovery vehicle.

The other variants include the MOP-3E1 fire support vehicle, the BTR-3E1Sh command and staff vehicle, and the BSEM-3E1 armoured ambulance.

The body and turret of the BTR-3E1 are designed with all-welded steel armour, which provides maximum ballistic protection to troops against small-calibre automatic weapons. The body of the vehicle is lined with Kevlar liner for better protection.

The layout of the BTR-3E1 houses the engine in the rear, driving compartment in front, and a troop compartment in the middle. The troops can enter and exit the vehicle through a door provided on either side of the vehicle. The lower part of the side door opens downward to facilitate easy movement of the troops.

The vehicle accommodates six members. It is fitted with a Webasto C6 HVAC system for the increased comfort of occupants. The vehicle is also equipped with TNPO-115 and TVNE-4B periscopes for visibility during day and night, respectively.

Armament

The BTR-3E1 is installed with a BM-3 Shturm turret system. The turret is fitted with a ZTM-1 30mm automatic cannon, and carries 350 rounds of ammunition. The ZTM-1 30mm gun can be operated remotely from inside the vehicle to reduce casualty to the troops.

The vehicle is armed with a 7.62mm coaxial machine gun with 2,500 rounds of ammunition. The BTR-3E1 turret is also fitted with six 81mm electrically-operated grenade launchers, three on each side of the turret, for better coverage of the field. It can also be fitted with a 30mm automatic grenade launcher.

Engine

The power plant of the BTR-3E1 APC includes a Deutz BF6M1015 diesel engine coupled with an Allison MD3066 fully-automatic transmission. The engine can generate a maximum power output of 326 hp. The engine chamber is installed with an automatic double-action fire extinguishing system.

Mobility features

The BTR-3E1 APC is designed to operate in almost all terrains and provide better ride and safety to the troops. The vehicle is fitted with a central

BTR-3E1 ARMOURED PERSONNEL CARRIER

tire inflation system (CTIS) for better mobility on different terrains.

The vehicle can cruise at a maximum speed of 85 km/h. It can travel a maximum distance of 600 km without refuelling. It can be operated in adverse weather conditions during day and night. It can overcome a gradient of 30° and side slopes of 25°. It can cross vertical obstacles of more than 0.5m and trench obstacles of 2m.

The BTR-3E1 uses a single water-jet engine providing a speed of 8 km/h, when used as an amphibious vehicle.

SPECIFICATIONS

Vehicle type	Wheeled, armoured, amphibious
Combat weight, tons	16 / 16,5
Overall dimensions, mm:	
Length	7650
Width	2900
Height	2860
Ground clearance, mm	375
Crew	3
Troops	6
Number of firing ports	5
MOBILITY CHARACTERISTIC:	
Wheel arrangement	8x8
Engine type	UTD-20 (diesel)/Deutz BF6M 1015 (diesel)
Engine power, h/p	300 / 326
Power-to-weight ratio, hp/t	18,7 / 19,7
Type of transmission	Mechanical/automatic
Maximum speed:	
- on road	85 / 95
- off road	50
- afloat	10
Distance range, km:	
- on road	850
- off road	500
Maximum angle of gradient, deg.	30
Side slope, deg.	25
Ditch width, m	2,0
Vertical obstacle, m	0,5
Operation temperature, C°	from -40 to +55
Towing force on the winch, tons	6

ARMAMENT:	
Gun:	ZTM-1
Caliber, mm	30
Ammunition allowance, pcs.	400
Machine gun:	KT (PKT)
Caliber, mm	7,62
Ammunition allowance, pcs.	2000
Grenade launcher:	AG-17
Caliber, mm	30
Ammunition allowance, pcs.	87
Anti-tank guided missile:	Barrier
Ammunition allowance, pcs.	4
ADDITIONAL EQUIPMENT:	
Weapon stabilizer	Biplanar, electromechanical
Aiming drives of the weapon system	Electromechanical
Sighting system 'Track"	TV, day-and-night with integrated laser range finder, 2 control panels
Panoramic observation system 360 deg.	Panorama
Firefighting system	Automatic
Air conditioner/heater kW	10/18
Radio-communication equipment	At the demand of the customer

VARTA ARMOURED MULTI-PURPOSE VEHICLE (AMPV)

VARTA AMPV is designed for troops transportation in combat environment and can be equipped as a Command-Post Carrier, and can be used for evacuation of troops.

The vehicle capsule is made from specialized 560 mm steel grade which protects crew from up to 7,62 mm armoured piercing incendiary bullets.

VARTA utilizes a V-shape bottom structure and anti-mine seats, providing crew protection to withstand detonation of charges up to 6 kg of TNT. VARTA includes combat module equipped with either 7,62 mm or 12,7 mm machine gun.

The vehicle has 10 gun ports around its hull with capability of accommodation of UBGL (Under-Barrel Grenade Launcher).

VARTA ARMOURED MULTI-PURPOSE VEHICLE (AMPV)

SPECIFICATIONS

Dimensions (length / width / height), mm	6920 / 2550 / 3000
Total weight	16 t
Chassis	MAZ-5434X3-461-000
Wheel arrangement	4 x 4
Wheelbase	3950 mm
Clearance	> 340 mm
Engine	diesel, 6 cylinders, power 300HP
Transmission	8
Fuel tank	350 l
Maximum speed	110 km/h
Fuel supply	on road – 600 km, off road – 400 km
Maximum load on front axle	7 t
Maximum load on rear axle	9 t
Load capacity	min 3 t
Winch	drum type, electric, towing capacity — 9 t, rope 30 m
Tracking system	rear view camera, front camera, shock protection rearview mirrors
Braking system	double, pneumatic
Living facilities	air conditioning, heater, flow ventilation, medicine chest, system of ventilation powder gases

NOVATOR LIGHT ARMORED VEHICLE

Light armored vehicle NOVATOR was designed to carry out reconnaissance, patrolling, and peace-keeping operations, as well as being used as the main transportation vehicle under combat conditions. LAV NOVATOR can also be equipped as armored personnel carrier, medical vehicle or general purpose vehicle.

SPECIFICATIONS

Dimensions (length, width, height), mm	6500/2300/2300
Curb weight, ru	6400
Chassis	Ford F550
Wheel arrangement	4 x 4
Engine	Ford Motor Company 6.7L Power Stroke diesel V-8
Max Rated Power with RPM (hp at rated RPM)	300 hp at 2800 RPM
Compression Ratio	16.2:1
Fuel Tank Capacity (L)	160
Brake System	Hydraulic, dual with ABS
Maximum speed	12o km/h
Winch	Electric shock protective and waterproof winch
Climate control	Air conditioner and heating system ensure a comfortable climate in the cabin at a -40 to +50°C
Fire extinguishing system	High speed fire suppression system for crew compartment and engine compartment

DOZOR-B ARMOURED PERSONNEL VEHICLE

DOZOR-B armoured personnel carrier is a version of multi-purpose wheeled vehicle. It is designed to transport goods and people and to provide protection against small arms and NBC factors. **DOZOR-B** is suitable for usage by special units and police forces as a vehicle or carrier for different types of armament and military equipment. It can be used during both military and peacekeeping operations, moving on highways and cross-country terrains. This vehicle is available in the following modifications:

- armoured personnel carrier
- armoured vehicle
- NBC reconnaissance vehicle - command vehicle - ambulance
- reconnaissance vehicle
- general purpose vehicle

DOZOR-B ARMOURED PERSONNEL VEHICLE

SPECIFICATIONS

Vehicle type	Wheeled, armoured
Combat weight, tons	6,9
Overall dimensions, mm	
– Length	5400 (without the winch) 5680 (with the winch)
– Width	2400
– Height	2700
Ground clearance	400
Crew, men	3
Troops, men	8
Number of firing ports	6
Mobility characteristic:	
Wheel arrangement	4x4
Type of tires	Tubeless, bulletproof, with central pressure control
Engine type	DEUTZ BF 4M 1013 FC (EURO-3), four-cylinder diesel turbocharged engine with intercooler
Engine power, kW (h/p)	1122 (197)
Power-to-weight ratio hp/t	28,5
Type of transmission	Automatic, hydro-mechanical 1000LCT
Maximum speed, km/h:	
– on road	90-105
– off road	65

Distance range, km:	
– on road	1000
– off road	700
Maximum angle of gradient, deg.	30
Operation temperature, C°	-40/+50
Towing force of the winch, tons	6,8
Armament:	
Machine gun (remote control):	NSVT
Caliber, mm	12,7
Ammunition allowance, pes.	450
Traverse, deg.	360
Elevation, deg.	-3 to +68
Additional equipment:	
NBC system	Filtering and ventilating unit
Navigation system	Satellite SN-3003 Bazalt
Air cooling system capacity, kW	4,4
IR night vision system range, m	180
Radio ultra-shortwave communication system range, km	20

KOZAK 2

Multipurpose armored vehicle, that combines features of military tactical vehicles (like Eagle V or Hawkei) and MRAPs. Based on 4x4 truck Iveco Eurocargo. Has V-shaped hull and anti-mine seats. Level of ballistic protection – STANAG level 2 (for Kozak-2) and level 1+ (for Kozak-001). Level of blast protection – STANAG level 2a, 2b.

Is intended for a wide range of tasks and can perform as an auxiliary (soldiers transporting, ambulance tasks, convoy escort), and directly combat functions (reconnaissance, fire support).

Vehicle has passed all state trials and procedure of military acceptance and now is in serial production (as of today more than 50 vehicles were produced).

SPECIFICATIONS

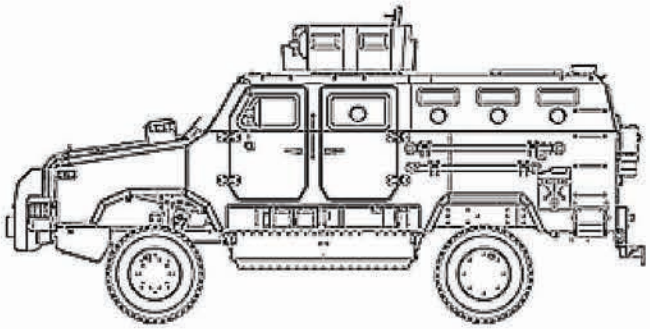
GVW	15000 kg
Length	6600 – 7100 mm
Width	2500 mm
Height (by roof)	2650 mm
Engine	Iveco, diesel
Power	280 hp
Torque	950 Nm
Transmission	ZF, manual
Seating capacity	3 – 10
Ballistic protection	STANAG level 2
Blast protection	STANAG level 2a, 2b

Equipment:

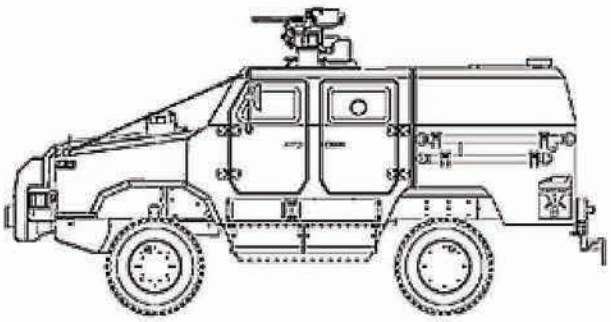
- Radiostation
- Navigation device
- Day/night camera for night driving
- Day/night camera for rear observation
- Climatic system
- NBC filtration device
- Automatic firefighting system
- Blackout headlights
- Run-flats
- Weapon station (option)

KOZAK 2

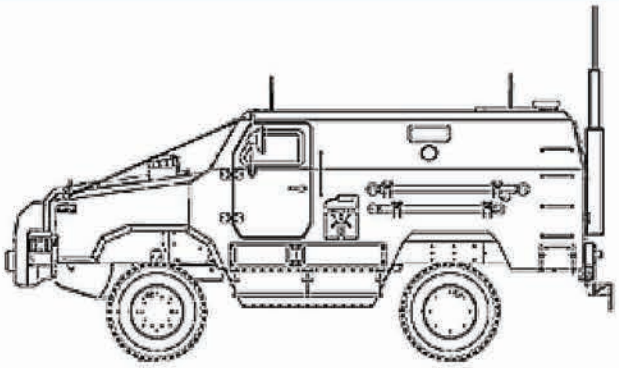
MODIFICATIONS



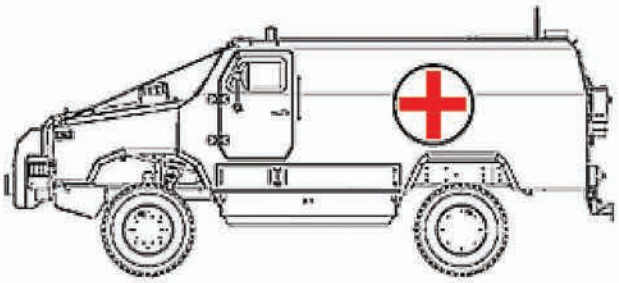
Personnel Carrier



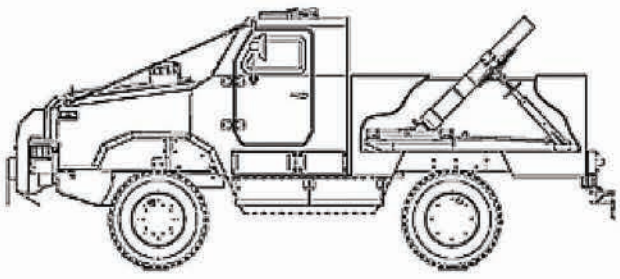
Tactical Vehicle



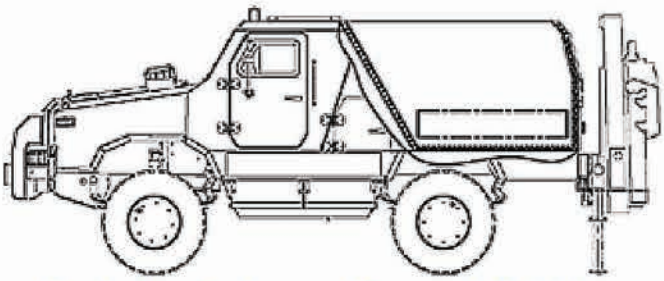
Command-and-Control Vehicle



Ambulance Vehicle



Mortar Carrier



Explosive Ordnance Disposal Vehicle

KOZAK 2

New-made modification of Kozak 2. Unlike regular Kozak 2, Kozak 2M do not use truck chassis as basis, but is made with monocoque body and independent suspension. This, in combination with CTIS, gives better off-road performance. All other construction features, including ballistic and blast protection, are equal to Kozak 2.

It is intended for the same tasks as regular version – soldiers transporting, ambulance tasks, convoy escort, reconnaissance, fire support etc. 2 versions were presented – presented – tactical version for small combat groups (Kozak 2M.1) and reconnaissance/artillery targeting version (Kozak 2M.2).

SPECIFICATIONS

GVW	12000 kg
Length	6230 mm
Width	2500 mm
Height (by roof)	2300 mm
Engine	Iveco, diesel
Power	280 hp
Torque	950 Nm
Transmission	ZF, manual
Seating capacity	3 – 10
Ballistic protection	STANAG level 2

Equipment:

- Radiostation
- Navigation device
- Day/night camera for night driving
- Day/night camera for rear observation
- Climatic system
- NBC filtration device
- Automatic firefighting system
- Blackout headlights
- Run-flats
- CTIS
- Weapon station (option)

KOZAK 5

KOZAK 5 is a vehicle for police and special forces based on 4x4 truck Ford F550, specially modified by official Ford converter "DBL Design" (front axle strengthening, suspention and brakes enforcing, bigger wheels installation). Level of ballistic protection – STANAG level 1+.

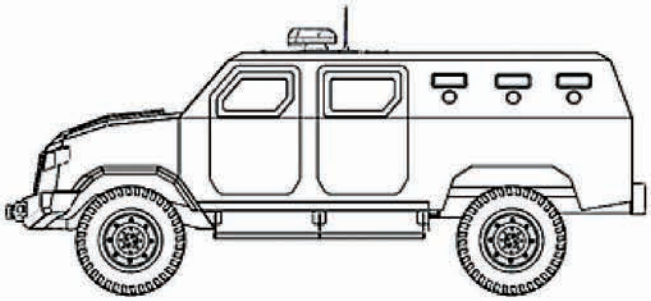
It is intended for small groups transporting and using its body as armor screen in case of skirmishes. Also can be equipped by ladder for buildings assault.

SPECIFICATIONS

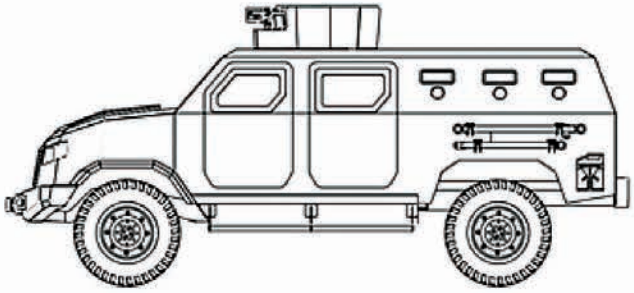
GVW	10000 kg
Length	5380 mm
Width	2360 mm
Height (by roof)	2320 mm
Engine	Ford, diesel
Power	400 hp
Torque	997 Nm
Transmission	TShift, automatic
Seating capacity	3 – 8
Ballistic protection	STANAG level 2

KOZAK 5

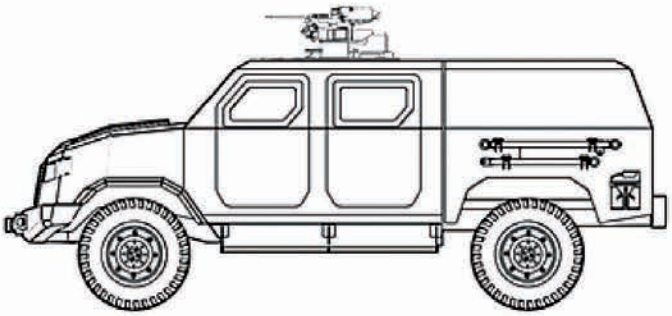
MODIFICATIONS



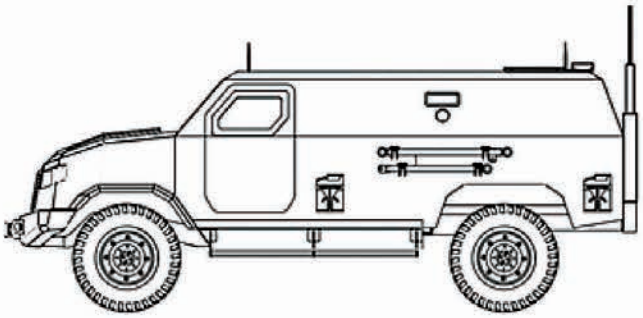
Police Vehicle



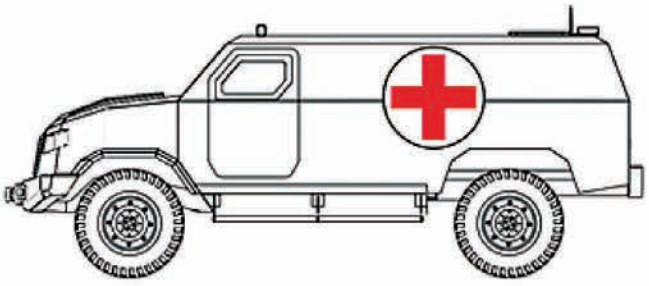
Personnel Carrier



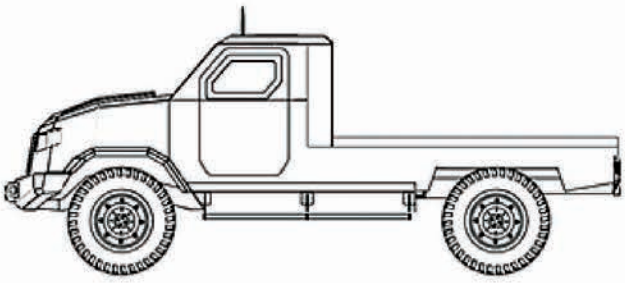
Tactical Vehicle



Reconnaissance Vehicle



Ambulance Vehicle



Cargo Vehicle

ARMOURED COMBAT VEHICLES

KRAZ SHREK ONE

KrAZ-MPV Shrek One is multi-role off-road mine protected vehicle with V-hull used to carry Special Forces personnel, cargoes and equipment.

SPECIFICATIONS

Chassis cab	KrAZ-5233HE
Configuration	4x4
Truck curb weight, kg	16000
Engine	diesel, turbocharged
Power, h.p.	300...400
Seating capacity	2 crewmembers + 13 seats
Top speed, km/h	105

Tyres	525/70R21 16.00R20; 1300x530-533 (CTIS)
Protection level	
- ballistic protection	B6+/STANAG 4569 Level 2
Mine protection:	
- under any wheels	2 x TM 57 mines (14 kg TNT)
- directly under hull	1 x TM 57 mine (7 kg TNT)

KRAZ-MPV FIONA

KrAZ-MPV Fiona is multirole armored off-road mine protected vehicle with V-hull based on KrAZ-6322. Intended for operations on transportation Special Forces personnel, cargoes and equipment.

SPECIFICATIONS

Chassis cab	KrAZ-6322
Configuration	6x6
Engine	diesel, turbocharged
Power, h.p.	300...400
Seating capacity	2 crewmembers + 13 seats
Fuel tank, l	2x250

Tyres	1300x530-533 445/ 65R22,5 (CTIS)
Protection level	
- ballistic protection	B6+/STANAG 4569 Level 2
Mine protection:	
- under any wheels	2 x TM 57 mines (14 kg TNT)
- directly under hull	1 x TM 57 mine (7 kg TNT)

SPECIAL PURPOSE VEHICLES

ARV-4RM ARMOURED RECOVERY VEHICLE

ARV-4RM is a four-axle, eight-wheeled, all-wheel drive, landing vehicle having protective skin and high mobility. It is equipped with seats for the crew consisting of commander, driver, fitter and welder.

The vehicle is based on armoured personnel carrier APC-4E and intended for the following tasks:

- technical reconnaissance on the battlefield;
- preparation for recovery and towing of broken, damaged, controlled and uncontrolled wheeled armoured personnel carriers (vehicles) to the nearest revetment and vehicle collecting centres (hereinafter - VCC);
- preparation for pulling-out and actual pulling-out of stuck or damaged weapons and military equipment with light and average sticking degree;
- crews assistance in ordinary and medium repair both in field environment and at VCC;
- lift-and-carry operations using crane-boom equipment during mounting/dismounting of APC and APC based vehicles components and assemblies both in field environment and VCC;
- run-up of weapons and military equipment engines by electric starter;
- ferrous metal welding and cutting using welding equipment;
- transportation (shipping) of cargoes, spare parts and tools on load platform;
- forcing water obstacles afloat for distances specified for a basic vehicle.

The vehicle's special equipment consists of the following:

- crane-boom equipment;
- hydro mounts;
- hydraulic power system of crane drive and hydro mounts;
- set of pulling fixtures;
- autonomous power unit (welding diesel-generator);
- welding equipment;
- set of process tools and fixtures;
- towing device (towing bar and coupling);
- supporting device (trail) for ground support during hoisting gear or crane-boom equipment operation;
- load platform.

ARV-4RM ARMOURED RECOVERY VEHICLE

CRANE-BOOM EQUIPMENT

Crane-boom equipment is a crane facility CF -3.2 with a remote control panel mounted on support and rotation device on the vehicle process compartment roof. Also, hydraulic supports are included into the crane-boom equipment.

Crane-boom equipment is designated for lifting up to 3.2 t weight cargoes.

BEAM LIFTING ANGLE, ^{0}	DUMPING RADIUS, M	MAX. CARRYING CAPACITY, T
UP TO 26	MORE THAN 5	1.2
26...48	5...3.75	2.8
48...70	3.75...1.5	3.2

WELDING EQUIPMENT

Welding equipment consists of the basis (8, see the picture) on which power plant is installed with welding mode function (9).

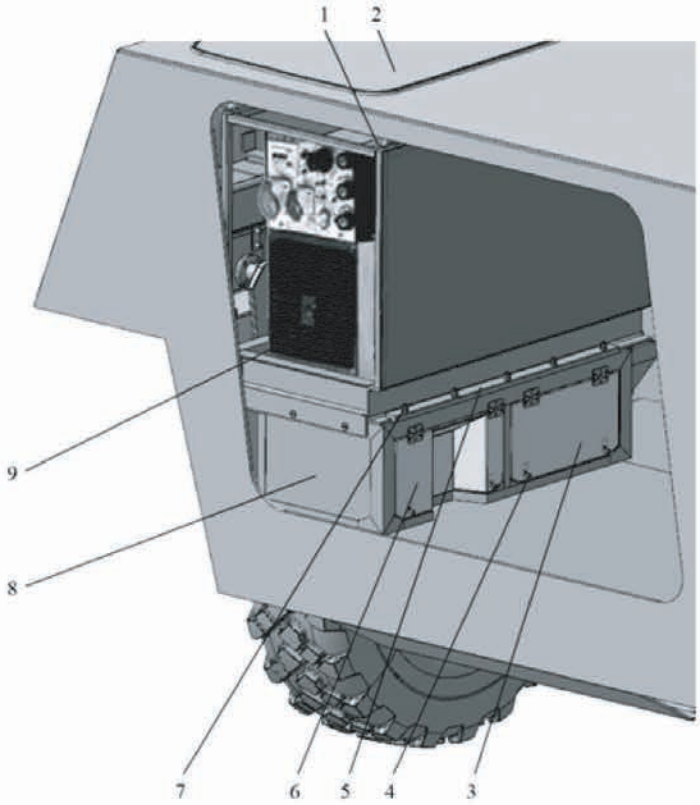
Power plant consists of diesel engine, electric generator and control panel protected with casing.

Power facility technical features:

Power: 17 kW

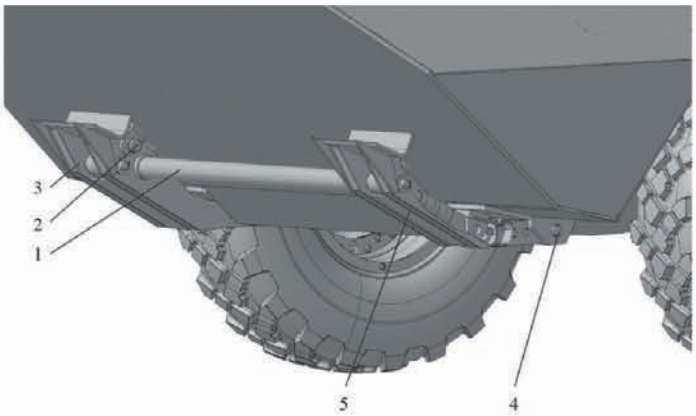
Overall dimensions: 1100x560x750 mm

Weight: 18 kg



1 – eye-bolt; 2 – door; 3 – right section; 4 – latchlock; 5 – pad; 6 – left section; 7 – nut; 8 – basis; 9 – power station with welding mode function.

ARV-4RM ARMOURED RECOVERY VEHICLE



Supporting device in travel position
1 – stay line; 2 – pin; 3 – right support; 4 – pin; 5 – left support

SUPPORTING DEVICE

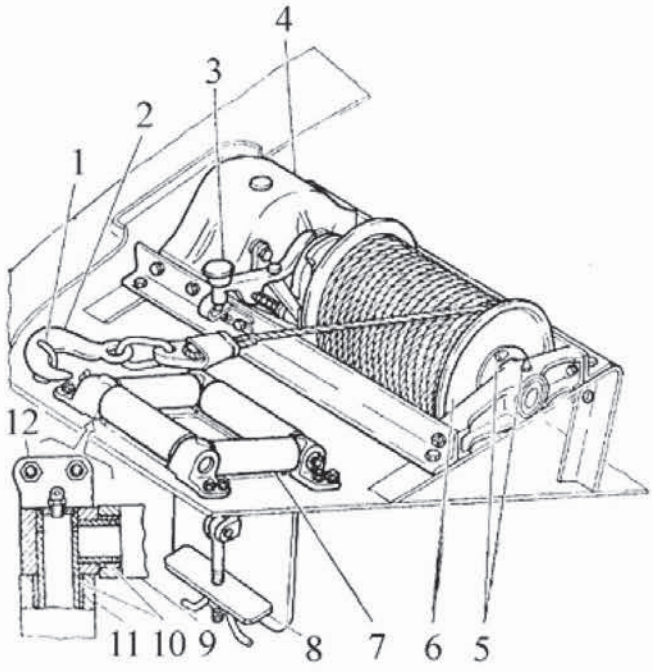
Vehicle supporting device is intended to create increased resistivity to vehicle movement during pulling-out of stuck vehicles and ground support front part of the vehicle shed during its operation while lifting cargoes.

HOISTING GEAR

Hoisting gear is designated for self-pulling-out of stuck vehicle as well as for pulling-out of other stuck same-type vehicles.

Maximum permissible cable hook pulling power at single-strand cable reeling on barrel is 92000N (9200 kgf). Pulling power decreases at increase of cable reeling radius on barrel. Power can be doubled if SPT&A kit is used.

Hoisting gear is installed in the front part of the vehicle. There are two doors in the vehicle shed for access to the hoisting gear at its operation and maintenance. Low front plate has a door for hoisting gear cable output where roll guides (7) are installed at the edges. Middle front plate (above the hoisting gear) has a door for access to cable output door cover lock (8) and barrel drive handle (3).



1 – clamp; 2 – hook; 3 – barrel drive handle; 4 – hoisting gear reduction case; 5 - ball valve oilers; 6 – barrel; 7, 9 and 11 – roll guides; 8 - door lock; 10 – roller shafts

ARV-4RM ARMOURED RECOVERY VEHICLE

SPECIFICATIONS

Full weight	t	20.9
3TD-3A engine power	kW (hp)	368 (500)
Specific power	kW/t (hp/t)	14.7 (20)
Maximum inland speed	km/h	110
Maximum speed afloat	km/h	10
Overall dimensions		
- length with crane-boom equipment	mm	8300
- width (by hull)	mm	2932
- height (with crane-boom equipment)	mm	3100
Base	mm	4400
Railway track gauge	mm	2445
Clearance (minimum)	mm	475
Endurance by highway (minimum)	km	650
Overcoming obstacles on dry land:		
- maximum grade ascending ability	^{0}	30
- maximum inclination angle	^{0}	25
- trench (ditch) width	m	2
- vertical wall height (minimum)	m	0.5
Hoisting gear		
Gross tractive effort	kN	92
Cable bearing length	m	50
Cable take-up and pay-out speed under load up to 90 kN (minimum)	m/min	10
Load platform		
Overall dimensions of the shipped cargo, mm	1510 x 1410 x 1150	
Carrying capacity	kg	1000

Bulldozing kit		
Width	mm	3380
Maximum landing	mm	300
Efficiency on loam soil	m^3/h	120
Crane		
Full lift	t	3.2
Peak radius	m	5.5
Crane beam lifting angle	^{0}	0 - 70
Crane arc of slew	^{0}	360
Crane rotation speed	rpm	0.2-1.5
Load lowering and lifting speed	m/min	0...4
Autonomous power unit (welding diesel-generator)		
Diesel engine rated power	kW	14.7... 18.4
Continuous operating time (minimum)	h	6
Supply power of three-phase consumers	kW	10
Supply power of double-phase consumers	kW	4
Electrode maximum diameter, mm		5
Maximum gauge of welded steel materials	mm	10

BREM-84 ARMOURED REPAIR AND RECOVERY VEHICLE

BREM-84 is based on T-80UD tank chassis.

Purpose of the vehicle is to prepare for recovery and to tow damaged armoured fighting vehicles, to carry out welding and excavation works, to transport spare parts and expendable materials within the weight limit of up to 1.5 t.

SPECIFICATIONS

Combat weight, tons	46 + 3%
Overall dimensions, mm	
Length / Width	8890 / 3560
Height (including NSVT-12,7 MG)	2740
Crew	3
Engine type / power, h/p	6TD-2, diesel / 1200
Power-to-weight ratio, hp/t	26,1
Maximum speed on road / off road, km/h	65 / 40
Distance range on road / off road, km	450 / 360
Armament:	
Machine guns caliber, mm	7,62
Ammunition allowance, pcs.	1500(6x250)
Fording depth, m:	
Without / with preparation	1,8 / 5
Main winch:	
Maximum pulling force, kN	250
Rope operation length, m	130
Rope winding and unwinding speed	
at force up to 250 kN, m/min	10
Drive	Mechanical
Auxiliary winch:	
Maximum pulling force, kN	9
Rope operation length, m	260
Drive	Hydrostatic
Dozer blade:	
Width, mm	3400
Maximum bite, mm	300
Blade performance (clay terrain), m^3 /h	120
Crane:	
Maximum capacity, t	25
Maximum radius, m	6,8
Jib swinging angle, deg.	0-75
Jib traversing angle, deg.	360
Crane traversing speed, r/m	0,2-1,5
Hook lowering and hosting speed, m/min	0,2-6
Loading platform:	
Loading area, mm	1200x1900
Carrying capacity, kg	1500
Welding outfit:	
Welding current, A	300
Maximum electrode diameter, mm	5

BTR-3BR ARMOURED REPAIR AND RECOVERY VEHICLE

BTR-3BR is based on APC wheeled chassis.

Purpose of the vehicle is to prepare for recovery and to tow damaged armoured fighting vehicles, to carry out welding and excavation works, to transport spare parts and expendable materials within the weight limit of up to 2 t.

SPECIFICATIONS

Crew	3
Troops	2
Crane equipment:	
Load capacity, t	at least 2 with a jib of 3,5 m
Hook height, m	4,5
Winch:	
Pulling force, t	6
Pulling force with triple pulley system, t	15
Usable rope length, m	50
Cutting and welding system:	Cutting and welding metal with thickness up to 10 mm at distances up to 20 m
Auxiliary power unit capacity, kW at least	8
Loading platform carrying capacity, t	up to 1
Machine gun caliber, mm	7,62
Ammunition allowance, pcs.	1500(6x250)
Firefighting system	Automatic
Air conditioner/heater, kW	10/18
Smoke screen laying system	Tucha, 6 mortars

MT-LBMSh LIGHT MULTI-PURPOSE TRACKED VEHICLE

The MT-LBMSh is fully amphibious armoured tracked vehicle, propelled in the water by its tracks. The low-silhouette MT-LBMSh has a flat-track suspension consisting of six road wheels with no return rollers. The box-like welded steel plate hull has a crew compartment at the front, engine immediately behind on the left side, and a troop compartment at the rear which has inward-facing folding canvas seats for 10 infantrymen. The flat hull roof has two forward opening troop exit hatches. The infantry enter and leave the vehicle by two rear doors which are provided with firing ports. The total of four firing ports also include one on each side of the vehicle. The small turret to the right of the commander's position mounts a single 7.62-mm machine gun. Standard equipment on all vehicles includes an NBC protection system.

SPECIFICATIONS

Vehicle type	Tracked, bulletproof, floating
Combat weight, tons	12,5
Overall dimensions, mm:	
Length	6454
Width	2850
Height	2480
Ground clearance	395-415
Crew	3
Troops	7
Mobility characteristics:	
Engine type	diesel
Engine power, h/p	330-360
Power-to-weight ratio, hp/t	28
Type of transmission	mechanical
Maximum speed, km/h:	
- on road	60
- off road	35-40
- afloat	6-7
Maximum angle of gradient, deg.	70
Side slope, deg.	46
Ditch width, m	2
Vertical obstacle, m	0,5

Operation temperature, °C	-40/+50
Towing force on the winch, tons	6
Armament:	
Gun:	
Caliber, mm	30
Ammunition allowance, pcs.	500
Machine gun:	
Caliber, mm	7,62
Ammunition allowance, pcs.	2000
Grenade launcher:	
Caliber, mm	30/40
Ammunition allowance, pcs.	87
Anti-tank guided missile:	
Ammunition allowance, pcs.	2+2
Additional equipment:	
Smoke grenade launcher, pcs.	6
NBC system	
Navigation system	
Air cooling system	
IR night vision system	
Radio communication equipment	

KRAZ MPV TC/RCV (SHREK ONE)

The KrAZ MPV TC is intended for operation in explosion hazardous area.

SPECIFICATIONS

Configuration	4x4
Curb weight, kg	16000
Diesel engine, V-shaped, turbo-charged	YAMZ-238D Deutz optionally
Gearbox	9JS150TA-B
Seating capacity	2 crew members + 10 seats
Mine protection	2 x TM57 mine (14kg TNT) land-mines 1 x TM 57 mine (7kg TNT) land-mine
Ballistic Protection	B6 + /STANAG 4569 Level 2
Windows	Transparent Multi bulletproof glass. The inner layer is made of polycarbonate.
Tires	445.65R22.5 /16.00R20 Systems Run Flat /CTIS - optional

KRAZ SHREK ONE RCV

The KrAZ-MPV (Mine Protected Vehicle) Shrek One RCV is used for reconnaissance in dangerous areas and removal of explosive devices.

KRAZ-5233 DEMINER

KrAZ-5233BE special vehicle with hydraulic crane is intended to carry engineer combat groups and special clearance equipment for prompt arrival to explosive substances detection sites, as well as for mine clearance and further transportation of heavy gauge explosive substances and unexploded ordnance with the gross weight exceeding 250 kg to disposal site.

SPECIFICATIONS

Basic chassis	KrAZ-5233BE
Configuration	4x4
Load carrying capacity, kg	9 400
Diesel engine, V-shaped, turbocharged	YAMZ-238DE2
Engine power, kW (h.p.)	243 (330)
Maximum speed, km/h	80
Angle of gradient, %	58
Tyres	16.00R20
Turning radius, m	13
Truck curb mass with the manipulator and sandbags, kg	15800
Winch	Central with rope rear delivery
Crane-manipulator	IM-95 (with remote control)
Cargo moment, t/m	8,5
Maximum boom extension, m	8,25
Load-carrying capacity at maximum working boom length, t	0,95
GPS-navigator (located in the cab)	EasyGo 200
Radio station (located in the cab)	VHF, IC-F211S
Special equipment:	
Gasoline blow torch	HUSQVARNA 950K Active
Petrol-powered saw	HUSQVARNA 575 XP
Electric drill press	GBH 11 DE BOSCH
Electric station	KGE 6500E

KRAZ-6333 PE TEM

SPECIFICATIONS

Configuration	6x6
Load carrying capacity, kg	9 400
Diesel engine, V-shaped, turbocharged	YAMZ-238DE2
Gear box – mechanical, 2-range	YAMZ-2381
Clutch	YAMZ-183
Control fuel consumption, l/100 km	34
Tires	550/75R21

The KrAZ-6333PE TEM recovery vehicle is used for recovery of damaged military vehicles, armored personnel carriers and other combat vehicles weighing up to 30 ton.

The vehicle performs well in tough environmental and road conditions of all continents within the temperature range from -50 to +60°C at 5000 m above sea level, overcomes up to 1.5m water obstacles and 0.6m deep snow cover.

A centralized tyre inflation system ensures excellent off road capability on low load-bearing capacity soils. A winch with pulling capacity of 12 ton is provided for self-recovery and towing various vehicles.

Both right-hand and left-hand drive versions are available upon customer's request.

KRAZ-63221 BRIDGE

SPECIFICATIONS

Configuration	6x6
Truck gross weight, kg	12900
Load carrying capacity, kg	12000
Engine	diesel, turbocharged
Power, h.p.	300...400
Top speed, km/h	85

The KrAZ-63221 Bridge vehicle is a transportation unit of PMP heavy folding pontoon bridge and TMM treadway bridge of engineering troops.

KVSZ-4003 TRENCH DIGGER

The KVSZ-4003 is designed for digging trenches, ditches, pits on different soils, covering up ditches and pits, as well as clearing, levelling, moving earth on different sites. The vehicle can be operated remotely via a remote control system. It can operate in extreme weather, climate and road conditions within temperature range from − 40°C to + 40°C.

The trench digging unit is assembled on 4x4 KrAZ-5233HE truck chassis.

SPECIFICATIONS

Speed, on road, km/h	85
Deploying and retrieval time	3 min
Retrieved dimensions, mm:	
- length	7 500
- width	2 520
- height	3 650
Deployed dimensions, mm:	
- length	10 540
- width	2 520
- height	3 100
Fuelled weight, kg	18 500
Crew	2
Trench digging unit type	chain, universal, bucketless
Evacuator of soil	rotor, reversible thrower with centrifugal discharge
Evacuation of soil	on one or both sides
Average output for different soils	
Trench digging, running meters per hour	
-non-frozen soils	300..400
-frozen soils	50..80
Pit digging, cubic meters per hour	
- non-frozen soils	140..160
- frozen soils	40..50

Trench profile on non-frozen soil, meters	
- upper width	0,9
- bottom width	0,65
- depth, not more than	1,2
Trench profile on frozen soil, meters	
- upper and bottom width	0,65
- depth, not more than	1,2
Pit profile on non-frozen and frozen soils, meters	
- upper and bottom width	2,0..7,0
- depth (three attempts)	3
Angle of negotiable slope on dry soil	60% (300)
Dozer equipment	
Steering Blade:	
- width, mm	2520
- height, mm	835
- cutting angle	55°
- cutting depth , m	0,4
Winch:	
- type	horizontal
- drive	hydraulic
Pulling force at the second coil of winding, kN (fc)	60 (6.0)
Hydraulic oil pressure, MPa	16,0+1,0

HUNTA OVERCOMER ALL-PURPOSE VEHICLE

HUNTA Overcomer represents a new class of all-purpose vehicles.

Unique suspension design, special doughnut tires, as well as lightweight and durable body made of fiberglass allow overcoming any obstacles: virgin snow, sand dunes and marshes. Floating in rivers and lakes is possible due to the latest design of the tread and screw propeller, which makes it amphibious.

It is intended for extreme recreation, hunting, rescue and patrol operations in a variety of road conditions.

Considering compliance with a wide range of tasks, HUNTA Overcomer has proven itself as a vehicle for geologists, hunters, fans of extreme recreation, as well as security agencies special divisions.

The vehicle has unique low pressure tires. Design and tire characteristics provide high manoeuvrability and buoyancy. Such tires do not damage topsoil due to low ground pressure (0.15 kg/cm^2). Flotation is performed by means of wheels and screw propeller rotation. Change of direction in floating state is performed by means of front wheels.

SPECIFICATIONS

Engine power, kW (h.p.) gasoline/ diesel	59.6 (81)/87 (120)
Displacement volume, cm^3 gasoline/diesel	1690/1929
Maximum torque, Nm (r/min) gasoline/diesel	127.5 (4000)/ 291.0 (2800)
Maximum speed, km/h	70
Maximum gross vehicle weight, kg	3300
Maximum curb weight, kg	2300
Maximum load-carrying capacity, kg	1000
Maximum load-carrying capacity on water, kg	700
Maximum dimensions (LxWxH), mm	4500x2500x2650
Clearance, mm	660
Wheelbase, mm	3100
Minimum turning radius, m	12
Maximum climb angle, degrees	40
Maximum obstacle height, m	0.6
Tire pressure, Bar	0.1 – 0.5
Maximum ground pressure, kg/cm^2	0.15
Number of seats	7
Maximum gross trailer weight, kg	1500

- Roof flap hatch
- Front winch
- Doughnut tyres 1400x750-610
- Audio unit
- Lifting jack
- 100 litre fuel tank
- Tyre inflation system
- Repair kit for rapid punctures elimination
- Heater

Additional upgrade options:

- Linex special coating
- Screw propeller with screw propeller actuator
- Auxiliary 95 litre fuel tank
- Roofracks
- Spare wheel
- Air conditioner
- Rear view camera
- Individual interior design
- Spotlights

SPECIAL PURPOSE VECHICLES

UNMANNEND GROUND VECHICLES

Unmanned Ground Vehicles “IRONCLAD” and “CAMEL” are designed and manufactured in Ukraine remote-control platforms, type of robotic transport, somewhere in between middle and heavy-duty vehicles.

With such features as low path, sensors and detectors, gunpower and mounted armor (can be removed or installed as per requirements), these platforms are designed for first line operations or reconnaissance in dangerous and adverse conditions.

Both platforms have the same wheel chassis system - 4x4 with independent control of each wheel, which ensures steady movement regardless of the depth or angle of the obstacle.

The hybrid power plant provides quiet movement.

Both platform integrate with reconnaissance systems, UAVs and drones. Both can be used to remotely launch UAVs. The platforms have sufficient capacity to meet the needs of electricity units when performing tasks in non-urban settings.

IRONCLAD is designed for reconnaissance, surveillance and target acquisition (RSTA) missions to increase the security of personnel.

Built-in combat module allows operator to use the platform as independent outpost in the most difficult and extreme conditions 24/7.

It is equipped with a number of sensors for collecting and transmitting data of various complexity for guidance and tracking purposes.

Can be positioned in remote areas unabled to monitor by personnel.

Operation of the platform is easy, each wheel has its own electric engine with epitrochoid harmonic drive to ensure robust torque transmission to ensure steady footing in rough terrain and on steep slopes.

Remote control is enabled via secure radio control channel with backup fiber-optic line. Each IRONCLAD radio system extends reach of network coverage and allows connection of additional MESH nodes.

Modular layered armor allows quick replacement of damaged parts.

COMMUNICATIONS

- Remote weapon station;
- Remote Anti-tank missiles station;
- Remote EOD (explosive ordnance disposal), IED (improvised explosive device) manipulators Sensor station for CBRNE (Chemical, Biological, Radiological, Nuclear, Explosive)
  Remote non-lethal weapon station.

UNMANNEND GROUND VECHICLES

SPECIFICATIONS

IRONCLAND

Length	2564 mm
Width	1720 mm
Height	945 mm
Height (with Light RWS)	1625 mm
Weight	970 ± 10 kg
Weight (with Light RWS)	1100 ± 10 kg
Maximum grade	30 °
Maximum side slope	33 °
Ground clearance	400 mm

SENSORS

Chassis	6 cameras
Angle of view	360 combined
Day/night	Near-infrared high sensitivity back-lit cmos 1/2.8'' full HD 2.5 m pixel
Architecture	Ethernet
Latency	<100 ms

DRIVING RANGES

Speed	20 km/h
Maximum payload weight (offroad)	200 kg ±
Total tractive force	1000 kg
Run time hybrid	8 h ... 10 h
Run time electric	1 h ... 1,5 h
Power options	Battery Pack, Li-ion
Power options	Diesel engine & electric generator

COMMUNICATIONS

Radio	BRRS
Effective distance	20 km
Frequency range	4.9 - 6.1 GHz
Bandwidth	100 Mbps

UNMANNEND GROUND VECHICLES

CAMEL was developed for logistics and evacuation tasks on the battle line and beyond, extending the reach without exposing personnel to unnecessary danger.
It is also a surveillance platform, collecting and storing video and sensor data for processing.

The wide frame allows to carry different types of cargo. Useful load up to 600 kg, towing weight up to 1 ton.

Independent 4x4 wheel control and flexible frame chassis ensures steady movement in rough terrain and on steep slopes.

The platform is ready for integration with C4ISR systems, UAVs and copters, serving as remote drone carrier platform and launch pad.

The platform can be operated as independent outpost in the most difficult and extreme conditions 24/7.

It is equipped with a number of sensors for collecting and transmitting data of various complexity for guidance and tracking purposes.

Sensors provide an image of 360 degrees.

Hybrid powertrain allows UGV to last during weeks in surveillance mode.

Onboard generator can be used for power supply in remote zones.

SPECIFICATIONS

Length	2800 mm
Width	1700 mm
Height	1380 mm
Height (with Light RWS)	1625 mm
Weight	500 kg
Power	250 VDC
Operation time (engine)	11 hrs
Operation time (batteries)	3 hrs
Speed	20 km / hr
Ground clearance	400 mm
Lifted angle	35 °
Payload weight	400-600 kg
Pull force	1000 kg

EQUIPMENT FOR ARMOURED VEHICLES

THE AIR CONDITIONING UNIT KTO-2,5

Outdoor unit of the air conditioner

Air processing unit

Power unit

Control panel

The air conditioning unit KTO-2,5 (air conditioner) is designed for ensuring comfortable working conditions for the crew in the inhabited compartment of the tank by cooling and drying, or ventilation air in the inhabited compartment.

Air conditioner includes:
- outdoor unit;
- air processing unit;
- control panel and power unit;
- connecting hoses and pipes for Khladon (cooling agent).

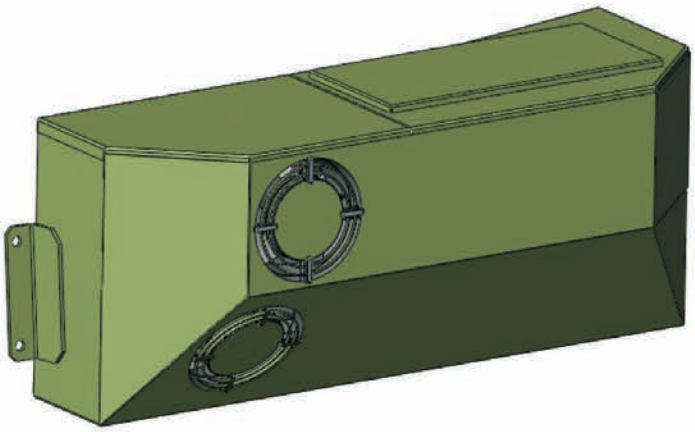
The outdoor unit has waterproof design, which excludes the preparatory work with air conditioning before overcoming water obstacles. There are versions of AOU with different fans: with axial fan and diffusers and a pressure fan for air distribution through the duct. Control panel and connecting cabels are also included in the air conditioner.

Specifications

1 Cooling capacity, kW	2,2
2 Power consumption, kW, not more than	1.8
3 Maximum consumption of processed air through APU, m3/h	300
4 Weight, kg	57
5 Cooling agent	R 134a

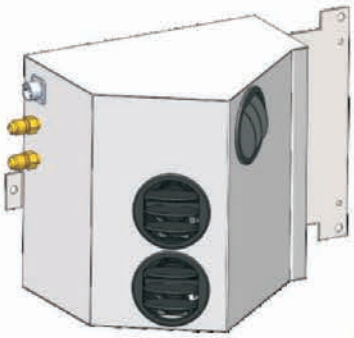
The configuration of the air conditioner units includes the installation of two air conditioners in the tank: one in the body, the second in the turret. This arrangement provides effective air treatment both in the control department and in the combat compartment.

AIR CONDITIONING UNIT AK-3,0



Outdoor unit of the air conditioner

Internal air processing unit



Control panel of the conditioner

Transitional device

The air-conditioning unit AK-3,0 (air conditioner) is designed for ensuring comfortable working conditions for the crew of the tank by cooling and drying, or ventilation of air in tank inhabited compartment.

Air conditioner consists of:
- outward unit of air conditioner;
- internal air processing unit (APU);
- control panel of the unit;
- connecting cables and tubes for cooling agent together with transitional device.

There is separate space in outward unit for SPTA of the tank. On the APU unit there are deflectors for optimal air distribution of air inside the turret.

Due to high automation level, easy operation of air conditioner is ensured. The information about: current values of cooling agent pressure, values of el.current, air temperatures in inhabited compartment is displayed on the screen of the control panel. Information about presence of interlocks or emergency situations and their causes is also displayed.

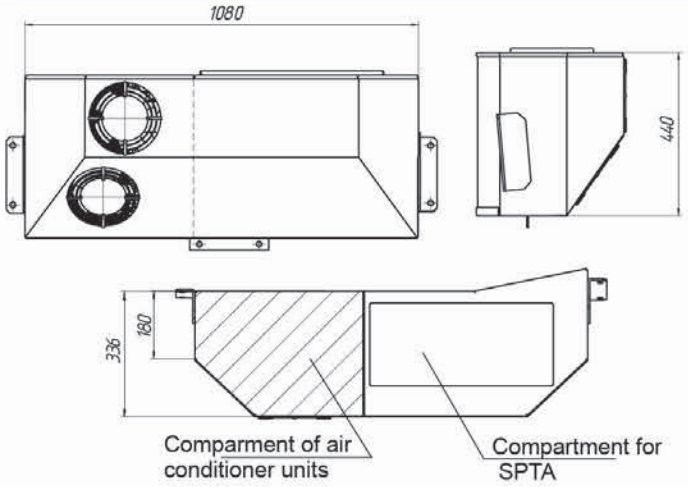
AIR CONDITIONING UNIT AK-3,0

SPECIFICATIONS

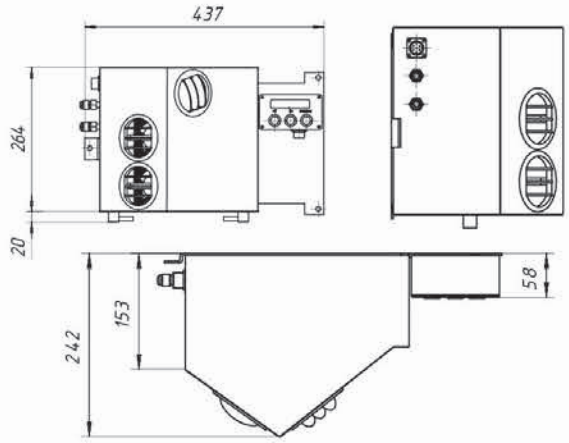
1 Cold productivity of air conditioner,(kWt)	3,0
2 Consumed current, no more than,(A)	90
3 Max. consumption of the air through the air treatment unit, (m?/hour)	500
4 Mass, (kg)	90
5 Refrigerant	R134a

Configuration of air conditioning will decrease units allows to install it in the tank T-72 with minimal modifications, without welding works on the tank. The outward unit is installed instead of SPTA box on the right side of the turret. Connection (tubes and wires) of outside unit with air processing unit (APU) installed inside the turret, is made through the hole in the turret of so called apparatus of intracommunication. The connector itself will remain. Air processing unit and control panel are installed inside the turret, behind the seat of the gunner, in exchange of 2 rounds. At the same time one round is placed in exchange of one charge behind the seat of commander. As a result of these changes the installation of air conditioning will decrease the number of ammunition in the tank on one round and one charge.

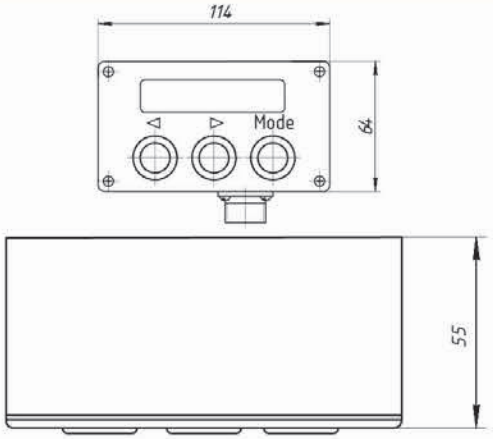
Outward unit of the air conditioner



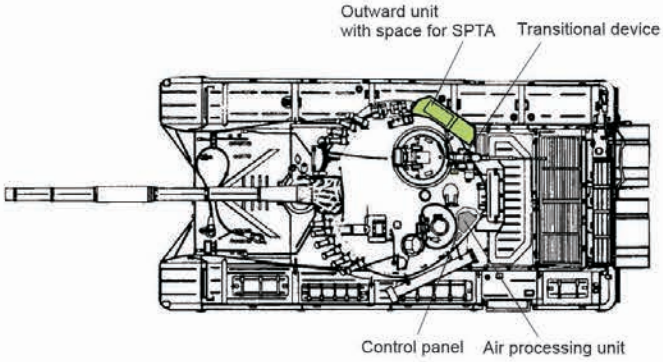
Internal air processing unit and control panel of the air conditioner



Control panel



Accommodation of air conditioning unit on the tank T-72

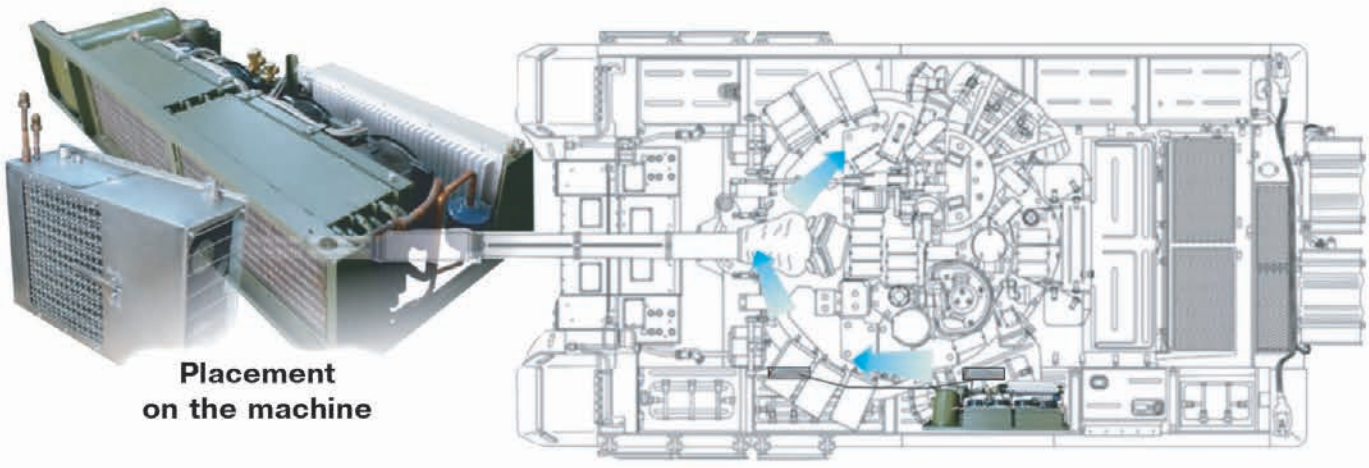


AIR CONDITIONER SPECIAL KC-4,5

- **Waterproof**
- **Ozone-safe khladon (cooling agent)**
- **Airflow speed control**

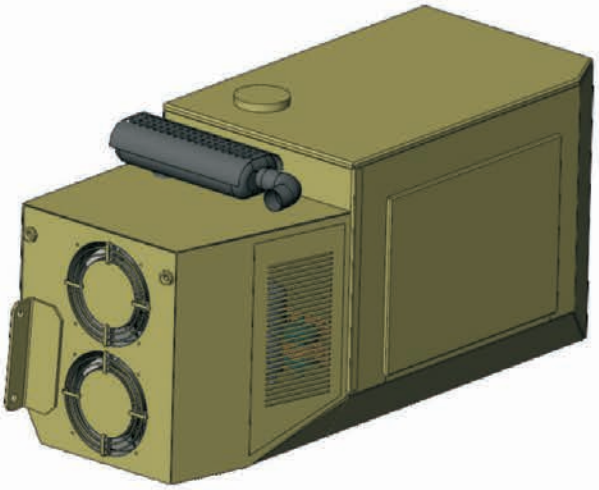
SPECIFICATIONS

Refrigeration capacity on nominal mode, Wt not less than, at: -air temperature at the input to the condenser 45C -air temperature at the input of air processing unit 30C	4500
Type of current, Supplied tension (V)	DC 27
Electric power consumption in cooling mode, Wt, Not more than	3300
Cooling agent	R 134a
Dimensions (L\W\H), mm: Compressor condensing unit Air processing unit (2 pieces) Control panel	 1270X505X235 435x315x145 190x60x70
Mass, not more than, kg	118



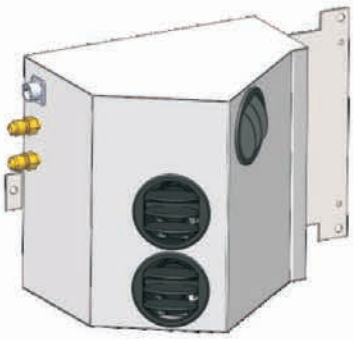
Placement on the machine

ELECTRIC SUPPLY AND AIR CONDITIONING UNIT APK-5,5



Outward block of the unit

Internal air processing unit



Control panel of the unit

Transitional device

The unit APK- 5,5 provides:
- Cooling or ventilation of air of the inhabited compartment, regardless functioning of the main engine of the tank.
- Electric supply of external consumers by DC, 27V, and also by AC, 220B.
- Electric supply to the tank devices that consume eneregy, including the charge of tank storage batteries.

The unit consists of:
- Outward block of the unit;
- Internal air processing unit,
- Control panel of the unit,
- Outward consumers cable,
- Inverter DC 24V/ AC 220V (option);
- Connecting cables with transitional device and tubes for a refrigerant.

The unit is the autonomous system, including the air-oil cooled diesel engine, with its own fuel tank which allow to work not only the air conditioner but also the system of electric supply for feeding of electric equipment of the tank.

The design of the unit allows to power the air conditioner both from the system when the main engine is running, or from the power unit. Maximum electric power output from the unit: 5.5 kW, when the air conditioner is operating in the cooling mode: 3.0-4.0 kW (depending on the air temperature).

Due to high automation level, simplicity of aggregate control is provided Information about below mentioned parameters is displayed on the screen of control panel: current values of pressure of cooling agent, value of supplied electic tension on the output of the aggregate, value of output electric current,RPM of diesel engine, temperature of air inside the cooling compartment, temperature in diesel compartment, different interlocks, emergency situations and their reasons.

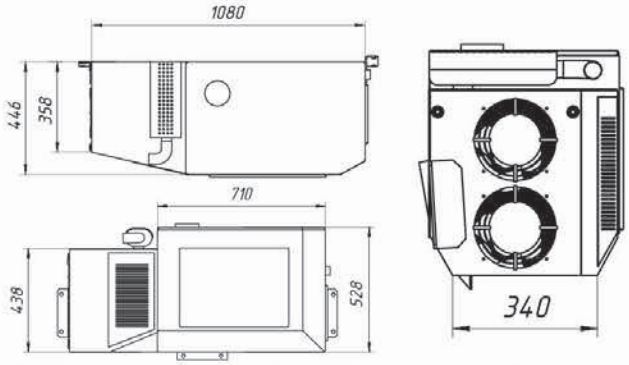
ELECTRIC SUPPLY AND AIR CONDITIONING UNIT APK-5,5

SPECIFICATIONS

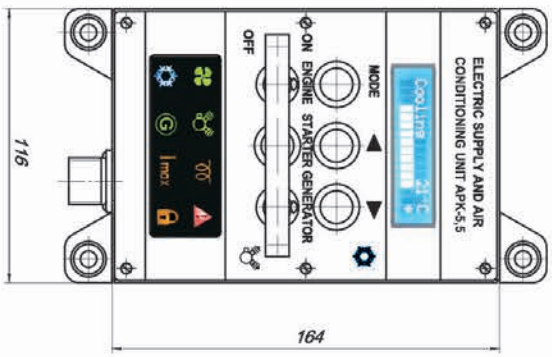
1 Cold productivity of air conditioner, (kWt)	3,0
2 Rated current, supplied to el. system of the vehicle,(A)	200
3 Rated electric power,(kWt)	5,5
4 Nominal electric power to electric system of the vehicle or outer consumers while the work of air condition in cooling regime, (kWt)	up to 4,0
5 Nominal power supplied to outer consumers, (kWt)	4,0
6 Kind of current, supplied tension (V)	DC, 27...28
7 Engine.	Diesel, two cylinder, four stroke, air-oil cooled
8 Max. consumption of the air through the air treatment unit, (m?/hour)	500
9 Mass, (kg):	not more 205
10 Refrigerant.	R 134a

Composition of elements of aggregate allows to install it in the tank T-72 with minimum changes and without welding works on the tank. Outside unit is placed in exchange of box of spare parts on the right side of the turret.Connection (tubes and wires) of outside unit with air processing unit installed inside the turret, is made through the hole in the turret of so called apparatus of intracommunication. The connector itself will remain. Air processing unit and control panel are placed inside the turret, behind the seat of the gunner, in exchange of 2 rounds. At the same time one round is placed in exchange of one charge behind the seat of commander. As a result of these changes the installation of the aggregate will decrease the number of ammunition in the tank on one round and one charge.

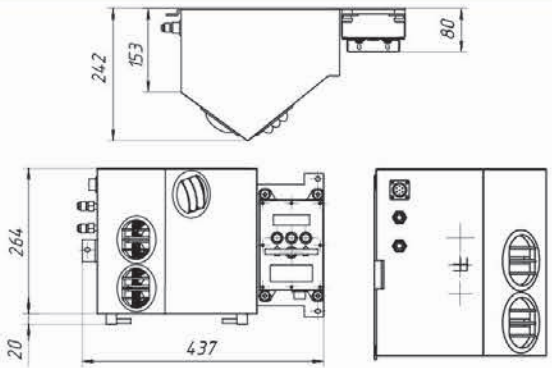
Outward block of the unit



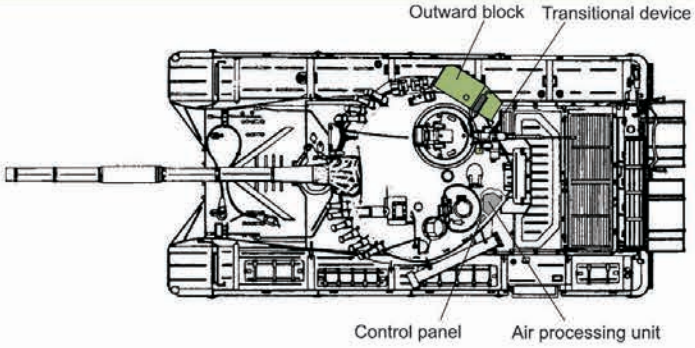
Control panel of the unit



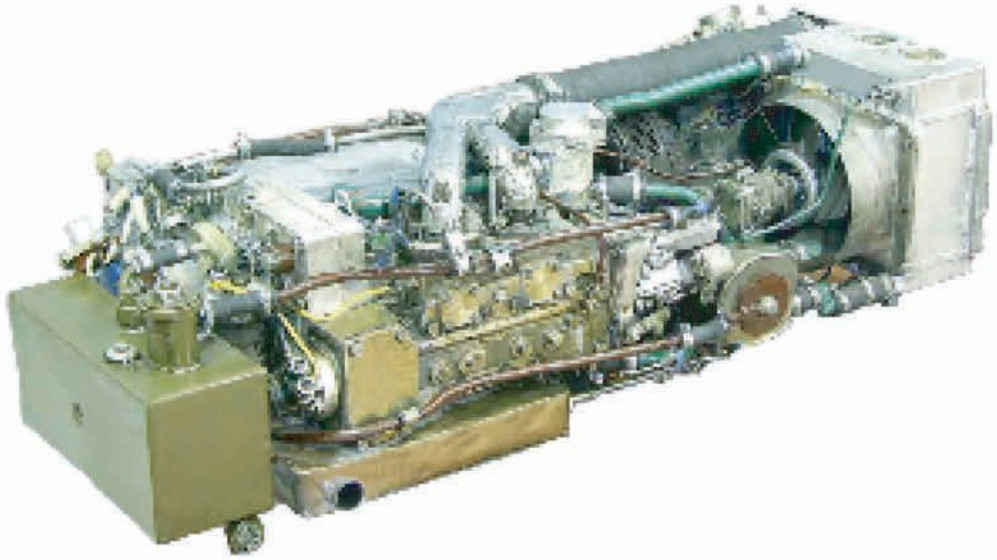
Internal air processing unit and control panel of the unit



Accommodation unit on the tank T-72



POWER UNIT EA10



Auxiliary self-contained power unit for the MCV and other vehicle users supply with D.C. electric power during parking

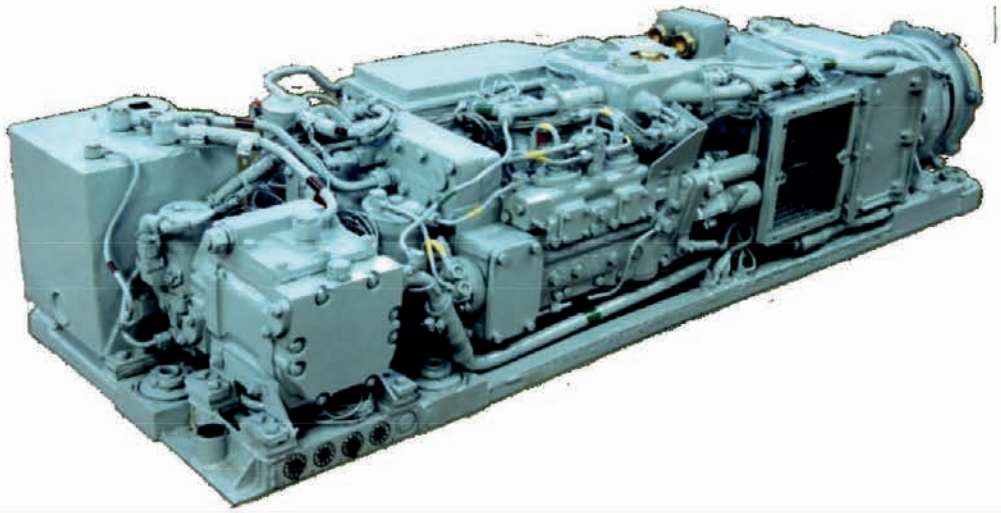
SPECIFICATIONS

Max power on generator clamps, kW	10
D.C. voltage, V	28.5
Diesel crankshaft and generator shaft rated speed, rpm	4100
Fuel rate in the mode of max power, kg/hr	3.8
Oil consumption at burn-out loss, kg/hr	0.09
Over-all dimensions, mm	
· Length	1300
· Width	495
· Height	315
Dry weight, kg	250
Control system	electric remote
Uninterrupted operating time	24

AUXILIARY POWER UNIT (APU) EA10-1 INSTALLATION

Installation of the EA10-1 APU onto T-72 tank will provide electrical consumers with the power supply when the engine is stopped, and save the technical life of the main engine. The EA10-1 APU is designed to provide operation of the firing control system and other systems of the tank when stationary with engine off, as well as for facilitating the start-up of the engine.

Installation of APU on the tank increases its weight by 500 kg.



SPECIFICATIONS

Max power at the terminals of EA10-1 APU, kW	10-0,5
Power is measured in steady thermal regime under the following conditions:	
· air pressure, MPa (mm Hg)	0,101 (760)
· air temperature at diesel engine intake, K (oC)	293(20)
· relative air humidity at temperature 293K (20oC), %	50
· vacuum in the intake manifold of the diesel engine, kPa (mm H2O)	1,96-0,98 (200-100)
· counter pressure at the gas exhaust of the diesel engine (exhaust muffler resistance), kPa (mm H2O)	5,89-0,98 (600-100)
· diesel fuel density at 293K (20 oC), gr/cm3	0,845
Power at terminals of the starter-generator in generator mode, provided various operating conditions must be, kW, not less:	
· at air temperatures at the diesel engine intake 318...328 K (45...55oC)	9-0,5
· at air temperatures at the diesel engine intake 298 K (25 oC) and altitudes above sea level of 3000m	7-0,5
DC voltage, V, with generated quality of electric power of the APU according to GOST V21999 standard	27,5±1
Electrical scheme – single-wire, «minus» - on the casing	
Fuel consumption at maximum power mode, kg/hr	3,8+0,2
Oil consumption waste, kg/hr, no more	0,09
Rotation frequency of the diesel engine crankshaft at maximum power mode, min-1	4100±100
Continuous operation at maximum power at the terminals of the starter-generator, hours, not less	24
Dry weight of the EA10-1 APU, kg, no more	250

AUXILIARY POWER UNIT (APU) EA10-1 INSTALLATION

The installation of the APU may be performed on the right aft track fender shelf in a sealed armored casing. At the same time, in order to ensure the necessary turret rotation, the declination angle of the FCS barrel in the aft will be reduced in comparison with the standard tank (or can be maintained if the spacer ring under the turret will mounted).

Costs of APU upgrade and works schedule

Description	Works schedule, months
Design documentation development	6
Prototype production:	
Manufacturing and supply of components for APU installation	18
Consumables, tools and spare parts necessary for carrying out acceptance trials	18
APU upgrade integration costs by Morozov DB team at customer's facilities	2 experts during 1 month (will be clarified after visiting customer facilities)
Morozov DB support team costs during acceptance trials	2 experts during 1 month. Duration is defined by trials program

RADIO STATION R-173 WITH SKIPPING (PPRCH - PSEUDORANDOM REALIGNMENT OF OPERATING RADIO FREQUENCY)

Mobile multi-channel Radio Station «R-173» is intended for arrangement of open or protected confidential radio-telephone communication and data transmit in tactical structural unit of management "company-battalion-brigade" within USW range (30-109,975 MHz) in different subdivisions and ground forces corps and is mounted on stationary objects, all types of motor transport and armored vehicles.

The radio station provides a possibility of operation under conditions of intentional interferences. Method of providing interference immunity – method of spectrum extension by means of pseudorandom rearrangement of operating frequency (Skipping). In traditional radio-telephone operating modes the radio station provides compatibility with old fleet of USW radio stations of the same range.

The radio station is powered by voltage of 27V DC supplied from on-board mains. In case of need the radio station can be delivered with additional units of power supply from 12V DC network and 220V AC network.

Radio station operating mode: one-frequency and two-frequency simplex.

Radio station features:

In all operating modes.

1) Automatic self-testing during power supply switching on, with the information indication in display.

2) Operative control and configuration from external devices:

- from the radio station front panel;
- from the remote control unit;
- from the portable programmer;
- from IBM of compatible computer.

3) Elimination in case of extraordinary situations of information of fixed frequency channels including information of encoding and codes for networks with Skipping, as well as

PZ radio station through radio channel.

4) Possibility of connection of external GPS receiver. When doing so, the object location GPS data reflection is provided in the front panel display as well as transmission of these data in encoded form through radio channel (optional: on demand or with certain interval).

5) Possibility of radio silence mode setting – disconnection of "transmit" mode when only "receive mode is activated".

6) Illumination of display and keyboard.

7) Indication of state and voltage of on-board (supply) network.

In mode of analog radio telephone communication at fixed frequencies.

1) Transmission of tone calls (1000 ± 200) Hz.

2) Possibility to equip the radio station with a scrambler module.

In digital mode at fixed frequencies.

1) Rise in system interference immunity while data transmitting by using error restoration algorithm (FEC encoding).

2) Possibility of technical masking of voice signal and data.

3) (Optional) Possibility to equip the radio station with module of full value encryptic pro-

tection of voice signal and data.

4) Transmission / Reception of digitized speech information and data;

5) Transmission and reception of digital selective and group call;

6) The radio station is provides for operation in batch communication networks.

7) Possibility to program up to 60 preset channels for operation on fixed frequencies over the entire frequency range of 30-109,975 MHz. The operating mode is set individually for each channel:

a) Analog radio telephone (open) mode;

b) Mode of reception/transmission of digitized voice information using facilities of technical masking, encoding or without them;

c) Mode of data transmission/reception using facilities of technical masking or encoding at rates of 1200, 2400, 4800, 9600 bit/s.

8) Possibility of reception/transmission of short text messages (up to 150 symbols).

III. In Skipping mode.

1) Possibility of operation under conditions of arrangement of intentional interferences.

2) Possibility of technical masking of voice signal and data.

3) (Optional) Possibility to equip the radio station with module of full value encryptic protection of voice signal and data.

4) Transmission and reception of digital selective and group call in the mode of reception/ transmission of digitized voice information.

5) Possibility to program up to 10 preset channels for operation in Skipping mode within the entire frequency range of 30-109,975 MHz. at frequency range covering. Possibility to arrange up to 6 orthogonal radio networks. The operating mode is set individually for each channel:

a) mode of reception/transmission of digitized voice data;

b) mode of reception/transmission of digitized voice information using facilities of technical masking, encoding or without them.

6) Possibility of reception/transmission of short text messages (up to 150 symbols).

7) Number of operating frequencies in a single radio network is 256.

RADIO STATION R-173M

Ultra-short wave simplex radio station R-173M is intended for maintaining two-way communication among vehicles both stationary and mobile.

FUNCTIONAL CAPABILITIES

Radio Station P-173M provides the following functions:

1) speech reception/transmission both in analog and digital mode;
2) speech masking in digital mode with possibility to change protection key from PC;
3) operation with speaking devices;
   - with throat microphones (ICS mode);
   - with terminal equipment (TERM EQ mode);
   - with intercom and switching equipment ABCK 1;
4) operation with exterior unit – GPS;
5) operation with exterior terminal (personal computer) through RS232 interface;

In analog mode radio station R-173M provides the following functions:

- speech transmission/reception with frequency modulation and data with frequency-shift keying.

In digital mode radio station R-173M provides the following functions:

1) file transmission/reception at rate up to 10 MByte (with receipt acknowledgement) in a mode without voice priority:
   a) at operating frequency at the rate of 12,8 кBit/s;
   b) at a pre-selected frequency (auxiliary channel) with further return to the operating frequency at the rate of 12,8 кBit/s;
2) file transmission/reception at rate up to 10 MByte (with receipt acknowledgement) in a mode with voice priority (C4I) at the operating frequency at the rate of 10 kBit/s;

3) transmission/reception of address short message with acknowledgement of receipt;
4) transmission of short messages in circular mode with acknowledgement of receipt;
5) operation with exterior unit GPS enabling performance of the following functions:
   a) determination of object's own coordinates;
   b) request of coordinates of remote object under individual number;
   c) request of coordinates of remote objects (up to 15 units) in circular inquiry mode;
   d) periodic transmission of own coordinates.
6) determination of radio station parameters from PC.

Radio station is powered by voltage of 27V from DC mains.

Radio station can be completed with additional power supply units:

- to be powered from 12V direct-current mains;
- to be powered from 220V alternating-current mains.

The Radio Station remains serviceable under the environment temperature from minus 40°C to plus 50°C.

DIGITAL INTERCOM AND SWITCHING EQUIPMENT AVZK-1 (R-174M)

AVZK-1 (R-174M) is intended for internal telephone communication between vehicle's crew members and for arrangement of external radio-telephone communication through radio stations.

Digital equipment AVZK-1 (R-174M) provides the following functions:

- transformation of voice signal received from communication helmet throat microphones into digital packets and their transmission to trunk line;
- reception of digital packets from trunk line and their transformation into analogue format for transmission to the communication helmet telephones;
- internal two-way duplex telephone communication with all (up to 6) subscribers of the system (with listening to one's own voice);
- internal circular two-way telephone communication with all subscribers of the system (with listening to one's own voice);
- internal addressed two-way telephone communication between subscribers of the system (with possibility of confidential conversation through internal communication network with any subscriber) and sending ring signal to the subscriber who is operating from another unit;
- internal or external two-way duplex telephone communication of all AVZK operators with a subscriber of the telephone set taken away up to 1000 m distance;
- simplex radio-telephone communication through VHF (HF) radio stations (up to 6) from all AVZK operating places;
- noise suppression through incorporated adaptive system;
- data transfer support;
- smooth volume control adjustment system.

INTERCOM AND SWITCHING EQUIPMENT AVZK-1 (R-174)

AVZK-1 (R-174) is intended for arrangement of internal and external communication within / between vehicles.

AVZK-1 represents a set of amplifying and commutating devices which provide subscribers with selected communication types. Based on unit options, different configurations of intercom and switching equipment of AVZK-1 are being produced for vehicles.

CAPABILITIES

Depending on production version, AVZK-1 provides following types of communication when installed in vehicles:

- internal two-way duplex / circular telephone communication with all subscribers (up to 7) along with listening to one's own voice;
- two-way telephone communication with subscriber of the telephone set taken away at up to 500 m distance;
- simplex radio telephone communication through VHF and HF radio stations for subscribers (up to 4) in radio station remote control mode;
- simplex radio telephone communication through VHF radio station for driver;
- reception of tone call signal from receiver and transmission and reception of tone call signals along radio stations and wire telephone line;
- smooth volume control adjustment system.

NAVIGATIONAL RECEIVER SN-3003

- Navigational receiver SN-3003 determines current coordinates, road speed and time to radio signals of SNS GLONASS and of GPS NAVSTAR anywhere in the world and at any moment of the time, irrespective of the weather conditions. The navigational data reflect by the LCD and also give to external users by the standard interface.
- The instrument is made of a shock proof casing. All the elements of the casing and joints, connecting devices, cables and antenna are water-resistant, and shock and dustproof are intended for use in the extremal field conditions, on the transport vehicles and other industrial units.
- The receiver is simple and convenient in operation. The operational mode and the output parameter selection is effected by a multiposition switch and four keys. The receiver has a backlight display where on the corresponding menu you can see current coordinates of your position, the equipment operational mode, the additional parametrs and also the results of functional systems and units automatic self-testing. A system of coordinates and a format of data output is selected by the operator.
- Navigational receiver CH-3003 can be used in the autonomous regime both as a sensor of navigational parameters and also as an element the different levels navigational and controlling systems

FUNCTION AND CAPABILITIES

- automatic selection of constellation for GLONASS and GPS satellites;
- integral mark of the current coordinates
- expected accuracy;
- output for external users "rough" measurements;
- input and processing of adjusting information according to RTCM SC-104, differential mode;
- input and storage of up to 500 routing points and up to 50 routs;
- storage of current coordinates as routing points;
- calculation of distance and direction between two points during the object moves along the route;
- output of information within WGS 84, PZ 90, SK 42 or within the user's coordinate system;
- display indication of a geographic projection and of Gauss Kruger projection;
- automatical test.

TECHNICAL CHARACTERISTICS

Frequency - L1, C/A code (GPS);
L1, ПТ code (GLONASS).
14 parallel channels

Accuracy (RMS):
position - 10 - 20 m GNSS (10 m),
10 - 30 m GLONASS,
25 - 40 m GPS (10 m);
altitude - 15 - 35 m GNSS (15 m),
15 - 50 m GLONASS,
70 m GPS (15 m);
velocity - 0.1 m/s GNSS,
0.1 m/s GLONASS,
0.5 m/s GPS (0,1 m/s).

Accuracy of a differential mode (RMS):
position – 1 - 5 m;
altitude – 3 - 7 m.
Initial time - "cold" start not over 180 s,
"warm" start not over 90 s.

Reacquisition after fall of navigational satellites signals - not over 6 s.

Rate of output navigational information renewal once per second.

Power 10-30 V DC input, 7 Wt (with antenna).

Size 176 mm x 195 mm x 65 mm.

Weight 1.8 kg with storage battery.

INTERFACE

Two RS232 input/output ports.
Protocols - IEC1162 (NMEA0183),
BINR, RTCM SC-104.
Exchange speed- not over 38400 bites/s.

PHYSICAL CHARACTERISTICS

Operating temperature - 20 +50°C (-50 +65°C for antenna).

Storage temperature - 60 +65°C (non-condensing humidity).

SPECIFICATION INTERFACE

- Navigational receiver
- Antenna (with cable 5 m)
- Storage battery and matching device
- Charging device
- Adapter
- Fixing holder

EQUIPMENT FOR ARMOURED VEHICLES

LIST OF PRODUCTS OF UKRAINIAN OEMs

PRESENTED BY DEFTECH GLOBAL LIMITED
(MANUFACTURE AND REPAIR)

FOR T-55M TANK AND ITS MODIFICATIONS

For VOLNA fire control system:

1. Range finder КДТ-2 (KDT-2) consisting of transceiver, indication unit БИ (BI), control unit ПУ (PU), electric unit ЭБ (EB), cables set, rimmed protective glass, spare parts, tools and equipment.
2. Range finder КДТ-3 (KDT-3) composed of: transceiver, rimmed protective glass, indication and control unit БУИ (BUI), cables set, spare parts, tools and equipment.
3. Ballistic computer БВ-55 (BV-55).
4. Voltage converter 9С831 ПН-1,5 (9S 831 PN-1,5) for the 9К116-1 BASTION sighting.
5. КА-1С (KA-1S) automatic equipment case.

For CYCLONE-M1 stabilizer.

6. Electronic amplifier (functional analog of БК2.087.014 (BK2.087.014)).
7. Tank intercom system ТПУ Р-174 (TPU R-174).

FOR T-55 TANK

For CYCLONE stabilizer

Electronic amplifier (functional analog of БК2.087.016 (BK2.087.016)).

FOR T-62M TANK AND ITS MODIFICATIONS

1. Ballistic computer БВ-62 (BV-62) for VOLNA fire control system.
2. Voltage Converter 9С831 ПН-1,5 (9S 831 PN-1,5).
3. Range finder КДТ-2 (KDT-2) consisting of transceiver, indication unit БИ (BI), control unit ПУ (PU), electric unit ЭБ (EB), cables set, rimmed protective glass, spare parts, tools and equipment.
4. Range finder КДТ-3 (KDT-3) consisting of transceiver, rimmed protective glass, indication and control unit БУИ (BUI), cables set, spare parts, tools and equipment.
5. КА-1С (KA-1S) automatic equipment case.

For METEOR M, METEOR M1 stabilizer

6. Electronic amplifier (functional analog of БК2.087.014, БК2.087.016 (BK2.087.014, BK2.087.016)).
7. Tank intercom system ТПУ Р-174 (TPU R-174).

FOR T-72, T-72A, T-72B TANKS AND ITS MODIFICATIONS

For 1А40, 1А40-1, ТПД-К (TPD-K) Sighting

1. Range finder unit БИД-1 (BID-1).
2. Traffic signal case КДС-1-2С (KDS-1-2S).
3. Engine shutdown unit БОД-1С (BOD-1S).
4. Ventilator control case КУВ11-6-1С (KUV11-6-1S).
5. Electronic case К1 for 2Э42 (2E42) stabilizer.
6. Voltage Converter 9С831 ПН-1,5 (9S 831 PN-1,5).
7. КА-1С (KA-1S) automatic equipment case.
8. Tank intercom system ТПУ Р-174 (TPU R-174).

FOR BMP-2 AND ITS MODIFICATIONS

For 2Э36 (2E36) stabilizer

Electronic modules, included into control unit БУ (BU)

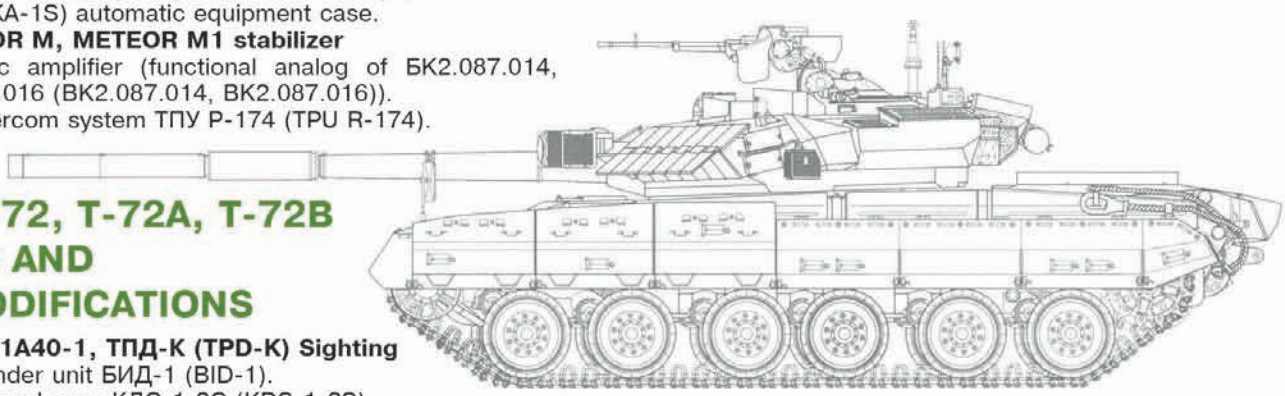
1. Control unit ПБ2.390.179-01, ПБ2.390.179-02 (PB2.390.179-01, PB2.390.179-02).
2. Amplifier ПБ2.035.030-01 У-ГН, У-ВН (PB2.035.030-01 U-GN, U-VN).

For fire control system

3. Relay case КР40-2С (KR40-2S).
4. Traffic signal case КДС-1-2С (KDS-1-2S).
5. Tank intercom system ТПУ Р-174 (TPU R-174).

FOR BMP-3 AND ITS MODIFICATIONS

1. Voltage Converter 9С831 ПН-1,5 (9S 831 PN-1,5).
2. Range finder КДТ-2 (KDT-2) consisting of transceiver, indication unit БИ (BI), control unit ПУ (PU), electric unit ЭБ (EB), cables set, rimmed protective glass, spare parts, tools and equipment.
3. Range finder КДТ-3 (KDT-3) composed of: transceiver, rimmed protective glass, indication and control unit БУИ (BUI), cables set, spare parts, tools and equipment.
4. Relay case КР40-2С (KR40-2S).
5. Traffic signal case КДС-1-2С (KDS-1-2S).
6. Tank intercom system ТПУ Р-174 (TPU R-174).



КДТ-2 (KDT-2) RANGE FINDER

КДТ-2 (KDT-2) Range finder is designed to measure range up to 4 km-distance. The range finder consists of the transceiver, indication unit БИ (BI), control unit ПУ (PU), cables set, rimmed protective glass, spare parts, tools and equipment, electric unit ЭБ (EB).

The range finder is designed for installation on T-55M, T-62M tanks and BMP-3 and their modifications as a component of VOLNA fire control system.

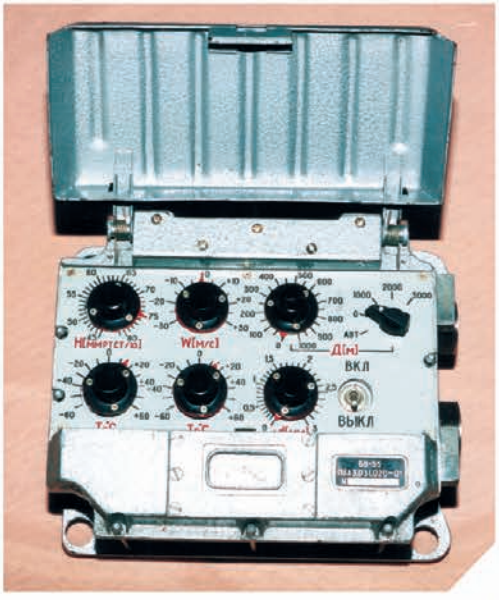
БИД-1 (BID-1) RANGE FINDER UNIT

Range finder unit БИД-1 (BID-1) is designed for installation on T-72, T-72A, T-72B tanks and their modifications as a component of 1А40, 1А40-1, ТПД-К (TPD-K) Sighting.

КДТ-3 (KDT-2) RANGE FINDER

КДТ-3 (KDT-2) Range finder is designed to measure range up to 4 km-distance. It is designed for installation as a component of VOLNA fire control system. Functionally, КДТ-3 (KDT-3) range finder is analogous to КДТ-2 (KDT-2) range finder but differs in composition. The single unit БУИ (BUI) of КДТ-3 (KDT-3) encompasses the functions of electric unit, indication unit and control panel.

It is designed for installation on T-55M, T-62M tanks and BMP-3 and their modifications.



БВ-55, БВ-62 (BV-55, BV-62) BALLISTIC COMPUTER

The product БВ-55, БВ-62 (BV-55, BV-62) is a microprocessor-based computing unit that processes input data on the target and firing conditions and provides the predicted data values: i.e. range angle as signal analogs and lateral lead angle as a digital code. It functions as a component of VOLNA fire control system.

It is designed for installation on T-55M, T-62M tanks and their modifications.

AMPLIFIER

The amplifier is designed for reinforcement and flattening of phase-sensitive signals, coming from angle-data and velocity transmitters of the gyroscopic stabilizer. The amplifier load is represented by electromagnet amplifying windings of the hydraulic booster and polar relay windings РП-5 (RP-5).
It is designed for installation on T-55, T-55M, T-62M tanks and their modifications. Full functional analog of the electronic amplifier unit БК2.087.014, БК2.087.016 (BK2.087.014, BK2.087.016). It is used as a component of stabilization systems "CYCLONE", "CYCLONE M-1", "METEOR M", "METEOR M1".

AMPLIFIER

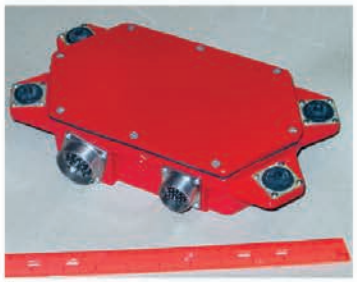
The amplifier is designed to convert control signal coming from the control unit into a pulse-width signal and to reinforce it to the extent needed to control the executive engines ЭДМ-14 (EDM-14) and ЭДМ-20 (EDM-20).
The amplifier is designed for installation on BMP-2 and its modifications as a component of 2Э36 (2E36) stabilizer. Full functional analog of the Amplifier ПБ2.035.030-01 У-ГН, У-ВН (PB2.035.030-01 U-GN, U-VN).

КА-1С (KA-1S) AUTOMATIC EQUIPMENT CASE

It is designed for automatic control of motor power supply (МУ-431 (MU-431) or ДВН-1 (DVN-1) type) of opening and closing gear of the protective cap at "NEVA" system and circuit switching of the signal "D" turning on.
It is designed for installation on T-55M, T-72Б, T-62M tanks and their modifications.

БОД-1С (BOD-1S) ENGINE SHUTDOWN UNIT

In case of reverse phase sequence the unit signals for the fuel cut-off at sensor rotation speed of 4.4 ± 0.8с-1 (275 ± 50 rotations/min).
The signal for lamps lighting at critical engine rotations is emitted at sensor rates 18±0.8с-1 (1125 ± 50 rotations/min) under any phase sequence.
It is designed for installation on T-72 tank and its modifications.



КУВ11-6-1С (KUV11-6-1S) VENTILATOR CONTROL BOX

КУВ11-6-1С (KUV11-6-1S) ventilator control box is designed to function as a component of fire-fighting control system УА ППО (UA PPO). УА ППО (UA PPO) fire-fighting control systems can be used for both automatic and manual fire-fighting. The direct purpose of КУВ11-6-1С (KUV11-6-1S) is ventilator and booster turning on, as in case of fire event both ventilator and booster are turned off in order to cut off oxygen access providing for burning; and in case of poisonous agents infiltration to the object, it is turned on for ventilation reinforcement.
It is designed for installation on T-72, T-72A, T-72Б, T-55 tanks and their modifications.

ЭСА (ESA) ELECTRIC WELDING UNIT

It is designed to control voltage while welding, i.e. the unit prevents voltage exceeding 70V; in case of over-ranging the nominal value, the unit automatically interrupts welding power supply.
It is used in engineer vehicles of BREM (armoured recovery vehicles) and BTS (multipurpose armoured towing vehicles) types.

WATER SENSOR AMPLIFIER 11-02

Water sensor amplifier 11-02 is designed to determine the presence of water within the vehicle.
It is designed for installation on BTR-3E.

EQUIPMENT FOR ARMOURED VEHICLES

9С831 ПН-1,5 (9S831 PN-1,5) VOLTAGE CONVERTER

9С831 ПН-1,5 (9S831 PN-1,5) voltage converter is designed for joint functioning with 1К13 sight. After voltage is turned on, the unit produces Uout=150V and In=10A during (3-5) seconds, then Uout voltage is lowered up to (60-70) V, and In increases up to (21±1) A.

It is designed for installation on T-72, T-72A, T-72Б, T-55M, T-62M tanks and BMP-3 and their modifications.

ПУ-509М (PU-509M) CONTROL PANEL FOR УТД-20 (UTD-20) ENGINE CONTROL SYSTEM

ПУ-509М control panel is designed to control УТД-20 (UTD-20) engine functioning on BTR-3E, it ensures collection and processing of data from engine systems' sensors and implementation of the following automatic modes:

- engine emergency shut-down;
- ensures coolant pumping to the engine in case it stops;
- emergency situation signals emission to the exterior light indicators.

CONTROL UNIT

The control unit is designed to summarize, convert the amplification of control signals of the vertical and horizontal guidance drives, as well as to switch circuits in order to ensure the required operating mode of BMP-2 2Э36 (2E36) stabilizer.

Full functional analog of the Control unit ПБ2.390.179-01, ПБ2.390.179-02 (РВ2.390.179-01, РВ2.390.179-02).

КДС-1-2С (KDS-1-2S) TRAFFIC SIGNAL BOX

КР40-2С (KR40-2S) RELAY CASE

К1 ELECTRONIC CASE

К1 electronic case of 2Э42 (2E42) stabilizer is designed for processing signals from tank's gyroscopic sensors and controlling armament unit.

It is designed for installation on T-72 tank and its modifications.

ТПУ Р-174 (TPU R-174) TANK INTERCOM SYSTEM

ТПУ Р-174 (TPU R-174) intercommunication and commuting equipment is designed for installation on armoured vehicles to provide internal telephone communication between commander and crew. It enables crew to enter external communication via radio.

MILITARY TRUCKS

MILITARY TRUCKS

KRAZ-6322 HMPV-A

SPECIFICATIONS	
Configuration	6x6
Load carrying capacity, kg	6000
Engine	YAMZ, Deutz
Power, kW (h.p.)	330 (400)

KRAZ-6322-047

SPECIFICATIONS	
Configuration	6x6
Load carrying capacity, kg	8 000
Engine	V-shaped, diesel
Power, kW (h.p.)	290 (330)

MILITARY TRUCKS

KRAZ-5233BE

SPECIFICATIONS

Configuration	4x4
Load carrying capacity, kg	6 000
Diesel engine, V-shaped, turbocharged	YAMZ-238DE2
Gear box – mechanical, 2-range	YAMZ-2381
Clutch	YAMZ-183
Control fuel consumption, l/100 km	35
Tires	550/75R21

KRAZ-6322 SOLDIER

SPECIFICATIONS

Configuration	6x6
Load carrying capacity, kg	10 000
Diesel engine, V-shaped, turbocharged	YAMZ-238DE2
Gear box – mechanical, 2-range	YAMZ-2381
Clutch	YAMZ-183
Control fuel consumption, l/100 km	39
Tires	530/70-21

KRAZ-63221 TYPE 3

SPECIFICATIONS

Configuration	6ō6
Load carrying capacity, kg	15 400
Diesel engine, V-shaped, turbocharged	YAMZ-2381
Gear box – mechanical, 2-range	YAMZ-2381
Clutch	YAMZ-183
Control fuel consumption, l/100 km	38
Tires	550/75R21

KRAZ B12.2MEX

SPECIFICATIONS

Configuration	6ō6
Load carrying capacity, kg	12 000
Diesel engine, V-shaped, turbo-charged	YAMZ, Deutz
Gear box – mechanical, 2-range	9JS200TA
Clutch	MFZ-430
Control fuel consumption, l/100 km	39
Tires	445.65R22.5

TACTICAL MEDICAL SOLUTIONS

TACTICAL MEDICAL SOLUTIONS

KRAZ SHREK ONE AMB

The KrAZ Ambulance with underbelly mine protection is intended for operation in explosion hazardous area.

SPECIFICATIONS

Configuration	4x4
Curb weight, kg	16000
Diesel engine, V-shaped, turbo-charged	YAMZ-238D Deutz optionally
Gearbox	9JS150TA-B
Seating capacity	2 crew members + 4 stretchers + 2 seats
Mine protection	2 x TM57 mine (14kg TNT) landmines 1 x TM 57 mine (7kg TNT) landmine
Ballistic Protection	B6 + /STANAG 4569 Level 2
Windows	Transparent Multi bulletproof glass. The inner layer is made of polycarbonate.
Tires	445.65R22.5 /16.00R20 Systems Run Flat /CTIS - optional

TACTICAL MEDICAL SOLUTIONS

MEDICAL VARTA

Medical APC VARTA designed to provide safe environments for medical teams handling trauma cases during evacuation within military environments. The vehicle equipped with a full complement of medical supplies and gear.

SPECIFICATIONS

Total weight	16 t
Load capacity	3 t
Engine power	270 or 300 HP
Maximum Speed	110 km/h on road
Torque	1128 H*m
Transmission	8 Gear Manual Transmission
Tire size	14,00 R 20 / 16,00 R 20
Cruising range	nolessthan1200km
Electrical system	24V
Protection	level 2 by STANAG 4569
Passenger	2+8
Living facilities	airconditioning, heater, flow ventilation, medicine chest, powder gases ventilation system
Fire extinguishing system of engine and crew compartment	automatic
Suspension	modernized by adding special off road absorbers suspension front and rear shock absorbers
Seats	military blast protection and absorbing seats fivepoints seatbelts
Rubber Runflat will allow continued operation even after a loss of some or all inflation pressure for up to 50 km on off road	
Winch	10t electric to wing capacity 30 m rope
Stratchers mounting	Wall mounting
Medical equipment	4 stretcher case · Roof mounting 4 stretcher case / 6 sitting case · Central part passenger compartment 2-3 stretcher case & 6 sitting case AED/Manual Defibrillator, transfer Sheet, KED CPR Case Class II

ARMOURED AMBULANCE BASED ON HMMWV

Forefront ambulance made on HMMWV basis. Also can be built on any another off-road vehicle of proper bearing capacity. Has armored body, that gives possibility to take wounded just from battlefield. Level of ballistic protection – STANAG level 1.

Is equipped by special medical equipment. Beside wounded evacuation from battlefield, also can carry functions of mobile first-aid post or bandaging room.

Equipment:

- Radiostation
- Navigation device
- Day/night camera for night driving
- Day/night camera for rear observation
- Climatic system for driver cabin
- Climatic system for medical compartment
- Automatic firefighting system
- Blackout headlights
- Winch

SPECIFICATIONS

GVW	4000 kg
Length	4500 mm
Width	1980 mm
Height (by roof)	1900 mm
Engine	Cummins, diesel
Power	165 hp
Torque	353 N*m
Transmission	manual
Seating capacity	2 – 5
Ballistic protection	STANAG level 1+

ARMOURED AMBULANCE

Armoured ambulance has in-built medical facilities including continuous ECG monitoring, a ventilator, a suction unit to remove unwanted fluids, a DC refrigerator for preserving drugs, and an air-conditioner.

It has a seating capacity of 12 persons including two crew, two medical attendants and eight sitting patients, but this can vary depending on the number of stretcher patients, four stretcher patients only or two stretcher and four sitting patients.

THE FIELD X-RAY UNIT (FXU)

The Field X-ray Unit (FXU) is designed for field examinations of the wounded/injured persons or suspective objects without connecting to the power grid.

Application area:

- rescue service
- mobile field Hospital
- ambulance service
- rapid inspection of abandoned items and suspected explosive packages

Set includes:

- battery X-ray generator with RF wireless interface;
- digital X-ray detector with RF wireless interface;
- a tablet or laptop for viewing and storing X-ray images with RF wireless interface;
- charging blocks for generator batteries, X-ray receptor, tablet or laptop;
- software.

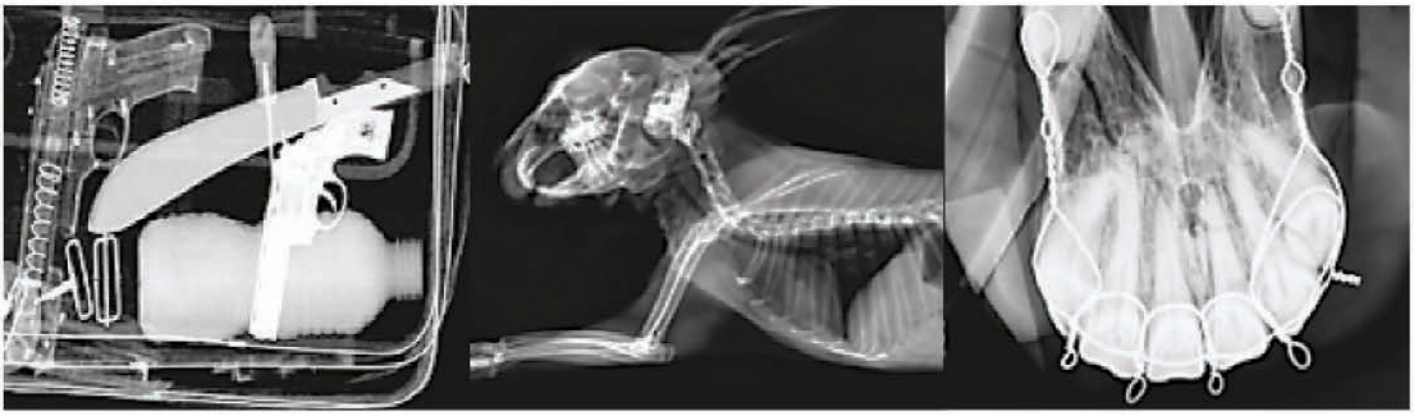
SPECIFICATIONS

Receptor Type	Multiple photo-diode sensors array (PSA) with optical coupling	
Sensors Number	120	
Field of view, mm	244 x 304	
Conversion Screen Type	CsI	CsI
Radiography mode	enhanced sensitivity	doubled pixels resolution
Screen Pixel Pitch, µm	135x84	75 x 84
Spatial Resolution, lp/mm	3,7 x 5,0	5,0 x 5,0
Pixel Area	1800 x 3600	3600 x 3600
Frame per second	5,5	2,7
Geometric Distortions	< 0,5%	
Brightness Non-Uniformity	< 1% of full scale maximum after sensitivity correction inside active area	
Scan Method	Progressive	
A/D Conversion	16 bits	
Non-responding Pixels Inside field of view	None	
Data Output with RF wireless interface	Wi-Fi IEEE 802.11n	

THE FIELD X-RAY UNIT (FXU)

Mechanical specification

Size, mm	412 x 258 x 75
Weight, kg	4,4
Housing Material	Carbon fiber
X-Ray generator interface	
X-ray exposure auto detection (AED)	Integrated
Primary Image Processing	
Geometric Distortion Correction	Software implementation, based on test-objects patterns
Non-Uniformity Correction	Full range, based on series of flat-field test objects.
Receptor Power Supply	
Power Input, V DC	24 VDC supply (1st stage)
	+ battery-powered (2nd stage).
	65W 230V (50 Hz) or 110V (60Hz) to 18VDC converter is provided separately and should comply all Council Directive 93/42/EEC requirements
Consumption, W	50 (max)



Major features:

High-precision low-error diagnosis.

IONA detector with DQE over 40%, 16 bits dynamics range, two additional modes with

i) doubled pixels resolution or

ii) enhanced sensitivity generates outstanding quality images that help users to reveal the slightest details of a subject.

Mobility. High capacity rechargeable battery provides outstanding mobility, eliminating the need to carry additional removable batteries, and ensures 200+ images acquisitions without recharging.

Productivity. Detector is ready to acquire images within 5 seconds. Consecutive images available in less than 4 seconds (with Ethernet connection) and in 12 seconds (with WiFi connection) allow practitioner to boost productivity. High signal-to-noise ratio (SNR) acquisition mode generates crisp images for still objects, thus providing the highest level images for NDT and security applications.

The proposed system is based on the US patented PSA technology. PSA architecture combines optically coupled two-dimensional array of sensors with ultra-fast stitching algorithms for reconstructing images.

Unique automatic brightness calibration technique ensures precise temperature and parametric noises drifts compensation even for consecutive images series acquisitions.

MOBILE SURGERY ROOM FOR FIELD HOSPITAL

Purpose:

Rendering first aid and performing surgeries in the field.

Features:

- Operating room walls made of medical plastic, easy for cleaning and disinfection
- Antiskid flooring
- Operating table
- Shelves for consumables
- Equipment rack for medical appliances
- Side table
- Shadowless medical light
- Medical gas system
- Sterilizing machine
- Heating, air conditioning and ventilation systems
- Washstand with a dozer for disinfectant and water heater
- Wardrobe
- Generator for independent power supply
- Socket for external power supply
- Mounting brackets on the roof
- Concrete foundation slab for levelling

MODERNIZATION OF ARMOURED VEHICLES

BRDM-2DI KHAZAR RECONNAISSANCE PATROL VEHICLE

BRDM-2DI KHAZAR is a modernized version of ex-Soviet BRDM-2 (Armoured Combat Reconnaissance/Patrol Vehicle).

Main features of modernization:

- two pairs of chain-driven belly wheels (initially used for trench crossing) and hydraulic lifts are dismounted;
- FPT IVECO Tector diesel engine is installed (ensures fuel consumption at level of 19 l per 100 km, Euro-3 ecological standards);
- two additional hatches are introduced for passenger disembarkation;
- new digital communication and navigation equipment is installed;
- set of anti-cumulative shield is installed.

There are two variants of armaments:

- Standard – 14,5mm machine gun and 7,62mm machine gun;
- Modernized (for reconnaissance teams) – 7,62mm machine gun and 30mm automatic grenade launcher installed on the roof, and additional 7,62mm machine gun at commander's station.

SPECIFICATIONS
(after modernization)

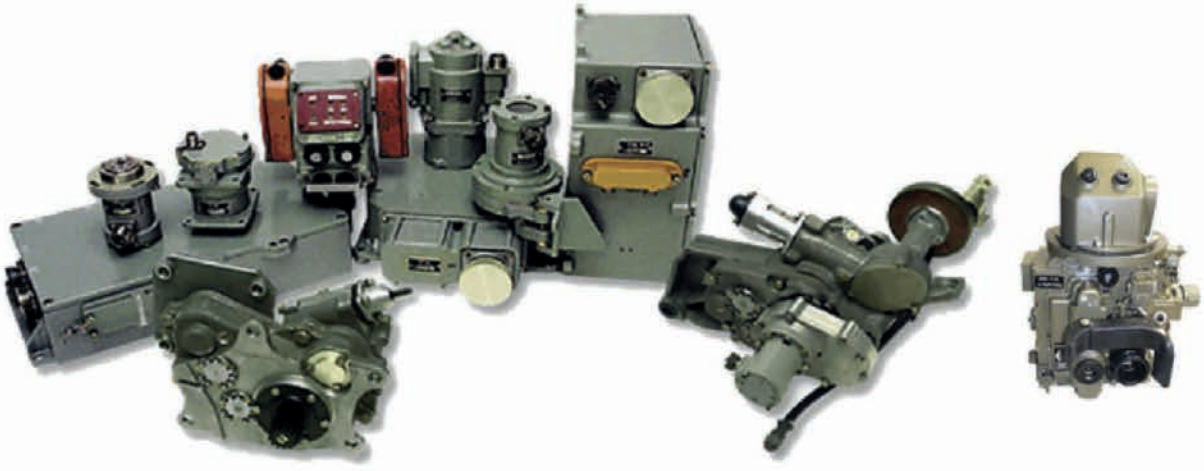
Dimensions:	
Length, mm	5750
Width, mm	2350
Height, mm	2310
Wheelbase, mm	3100
Track, mm	1840 forward 1790 rear
Clearance, mm	330
Engine	FPT IVECO Tector
Engine power, h.p.	138
Max speed on roads, km/hrs	110
Cruising distance on roads, km	1100
Chassis	4 x 4

MODERNIZATION OF ARMOURED VEHICLES

BMP-2 INFANTRY FIGHTING VEHICLE UPGRADE PROGRAM

BMP-2 UPGRADE FEATURES

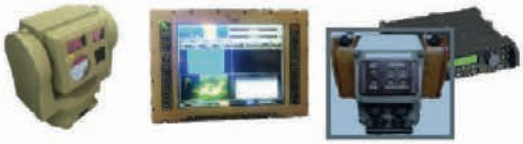
- Day camera
- Rangefinder
- Gyro stabilization in 2 planes
- Target detection of 5km at day and 4km at night (optional: 10km at day, 8km at night).
- Backup manual control of turret mechanisms
- Thermal imager
- Digital ballistic calculator: correction calculation based on type of weapon, shell, angle velocities in relation to the target
- Capture and automatic target tracking
- New generation electric drive of the turret with electronic control (integrated self-testing and security systems)
- Possibility to integrate any third-party opto-electronic module



MODERNIZATION OF ARMOURED VEHICLES

BMP-2 INFANTRY FIGHTING VEHICLE UPGRADE PROGRAM

Gunner sight



Automatic target capturing and tracking. Range measurement from 200m to 10km. Day channel, thermal imager (from 50m to 10km up to customer's choice)

Panoramic commander's sight

Range measurement from 200m to 10km. Day channel, thermal imager (from 50m to 10km up to customer's choice)

Electric drives of weapons and turret stabilization

Automatic or manual weapons control, data processing from videochannels, automatic target capturing and tracking, ballistic calculator, integrated self-testing system. Gyro stabilisation in 2 planes.

Day channel, thermal imager (up to 600m).

Information and Control System

Automatic or manual weapons control, data processing from videochannels, automatic target capturing and tracking, ballistic calculator, integrated self-testing system, remote control capability over a secure channel. Possibility of integration of any third-party opto-electronic module.

SATELLITE NAVIGATION (GPS, GLONASS)

Data from the combat units on the battle field is transferred to the command station over secure channel. Thus the current situation is being drawn and displayed on the digital map based on received data.

Thereby prompt adjustments to the course of combat can be applied.

CREW COMMUNICATION SYSTEM

Up-to-date digital software communication system with digital noise reduction.

Internal wire communication system for BMP crew. Communication is secured within the vehicle only.

BMP-2 MODERNIZATION: ATGM UPGRADES

- Up to 5000 m hitting range (25 sec flight time)
- Rangefinder
- Semiautomatic laser guidance
- Immune to Electro-magnetic & Infra-red Interference
- 800 mm armour-piercing behind ERA system
- Shaped charge warhead
- Capability to Fire from Ground and Vehicle Launcher

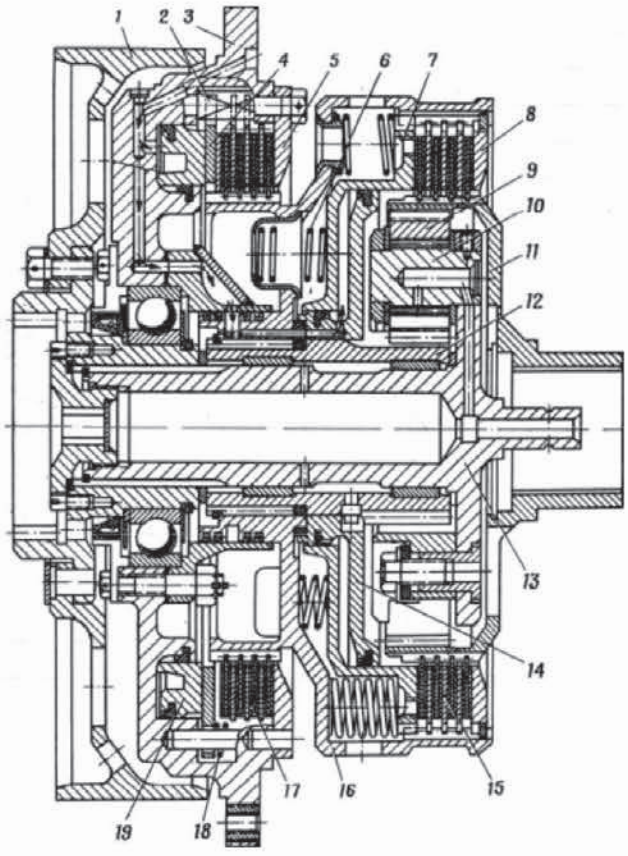
BMP-2 INFANTRY FIGHTING VEHICLE UPGRADE PROGRAM

THE POSSIBILITY OF APPLICATION OF HYDROSTATIC TRANSMISSIONS FOR BMP-2

The focus is in modernization of regular mechanisms with replacement of planetary gears. Regular Mechanisms have no function to perform rotation mechanisms but the functions of two-stage speed gearboxes transmission ratios 1 and 3. Shifting of speeds is frictional hydraulically operated for two sides (boards) simultaneously. After this modernization mechanisms will execute functions of board transmission boxes with function of stopping brake. Working mode of transmission boxes will be discrete.

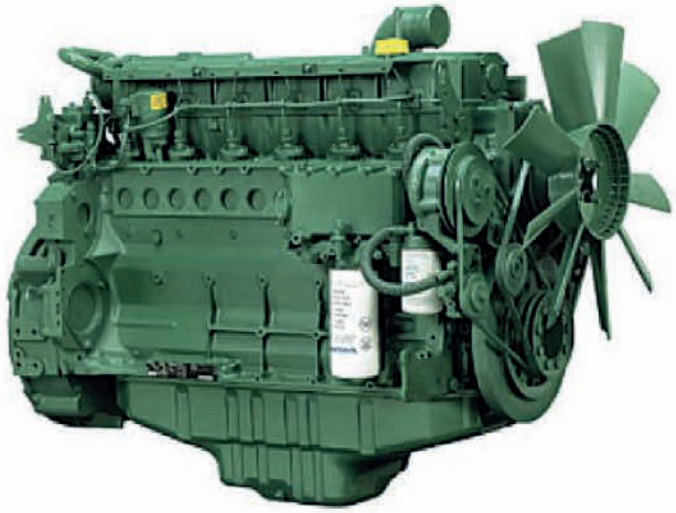
The gear ratio of i = 1 corresponds to more high-speed mode of transport movement.

The gear ratio of i = 3 corresponds to a pulling motion battle mode. The function turning and rotation is fully transferred to the Hydrostatics.



1 - drum of stopping brake 4; 2 - feather key; 3 - cover; 4,7 - pushing disks; 5,8 - support discs; 6 - spring; 9 - satellite; 10 - satellite, axel; 11 - epicycle; 12 - sun gear; 13 - carrier shaft; 14,19 - pistons; 15,17 - friction discs; 18 - reactive spring

VOLVO PENTA INDUSTRIAL DIESEL (MOD. TAD722VE)



Mentioned Planetary Gears will be connected with motors of hydrostatic transmission. Pumps of hydrostatic transmission and pumps for hydraulic drive other functions will be mounted on diesel TAD722VE (Volvo Penta).

Other functions mean the following: control of gear speed box / stopping brakes / main clutch / turning the turret / hydraulically driven cooling fan, etc.

It is possible to apply the same hydraulic pumps for the drive of other special additional equipment:

- winches for sailing propellers;
- pumps for fire-fighting (special fire performance of the machine), etc.

The Vehicle with calculated transmission allows to rich speed up to 68 km/h on a good road, 40 ... 50 km/h on cross-country and up to 36 km/h on ploughed earth. The Vehicle is able to rich up to 7 km/h in afloat condition using tracks as an engine. The higher speed can be achieved with installation of hydraulic drive propeller screws for movement afloat.

The ability to increase traction by applying hydrostatic transmission allows to pass difficult areas, to ease towing damaged vehicle and allow grade ability of up to 40°.

MODERNIZATION OF ARMOURED VEHICLES

BMP-1M INFANTRY FIGHTING VEHICLE

The combat vehicle BMP-1M is an upgraded version of BMP-1 with installation of the updated combat module and sighting & pointing system that qualitatively improves the fire power of the vehicle in combat under the conditions of active usage of antitank armament and WMD.

SPECIFICATIONS

Vehicle type	Tracked, armoured, amphibious, air-transportable
Combat weight, tons	13,7
Overall dimensions, mm:	
Length	7650
Width	2900
Height	2860
Ground clearance	400
Crew	3
Troops	7
Mobility characteristics:	
Engine type	UTD-20
Engine power, h/p	300
Power-to-weight ratio, hp/t	22
Type of transmission	Mechanical
Maximum speed, km/h:	
- on road	65
- off road	40
- afloat	7

BMP-1M INFANTRY FIGHTING VEHICLE

Distance range, km:	
- on road	600
- off road	400
Maximum angle of gradient, deg.	35
Side slope, deg.	25
Ditch width, m	2,5
Vertical obstacle, m	0,7
Operation temperature, °C	-30 to +55
Armament:	
Gun / Caliber, mm	ZTM-1 / 30
Ammunition allowance, pcs.	350
Machine gun / Caliber, mm	KT 7,62(PKT) / 7,62
Ammunition allowance, pcs.	2500
Grenade launcher (Caliber, mm)	AG-17 (30) / UAG-40 (40)
Ammunition allowance, pcs.	116
Anti-tank guided missile	"Barrier"
Ammunition allowance, pcs.	4
Additional equipment:	
Weapon stabilizer	Biplanar, electromechanical
Aiming drives of the weapon system	Electromechanical
Sighting system 'Track"	TV, day-and-night with integrated laser rangefinder, 2 control panels
Panoramic observation system 360 deg.	"Panorama"
Firefighting system	Automatic
Air conditioner/heater kW	10/18
Radio-communication equipment	At the demand of the customer

Features:

System can be installed stationary objects, battle tanks and armoured fighting vehicles.

It has modular design and interference immunity, is capable to select targets, autonomous, automatic and self-tested, day and night and all-weather operational, has small weight and size as well as reasonable cost.

T-64BM BULAT MAIN BATTLE TANK

T-64BM Bulat is a Ukrainian upgrade of the ageing Soviet T-64B main battle tank. Bulat was revealed in 1999. Initially two upgrade variants were developed - T-64BM (also referred as the T-64U) and T-64BM2. T-64BM2 is fitted with new automatic loader, however it has inferior fire control system. Eventually the more advanced T-64BM upgrade was selected. First vehicles were upgraded and delivered to Ukrainian Army units in 2005.

Protection was improved by installation of add-on passive and explosive reactive armour. T-64BM Bulat is fitted with new Nozh modular ERA (explosive reactive armour). Composite armour is used at the front of the hull and turret. Vehicle is fitted with NBC protection and automatic fire suppression systems.

This main battle tank is armed with a fully stabilized 125-mm smoothbore gun, fitted with automatic loader. Maximum effective range of fire is 2 500 m at daytime and up to 1 500 m at night.

Bulat is compatible with the 9K119 (NATO designation AT-11 Sniper) anti-tank guided missiles. These are handled and fired in the same manner as ordinary munitions. Guided missiles have a 90% hit probability at 4 000 m range and 80% hit probability at a maximum range of 5000 m. Its control system is based on a laser beam, while the missile automatically keeps to the centre of the beam. A total of 36 rounds, including anti-tank guided missiles, are carried.

Secondary armament consists of coaxial 7.62 mm machine gun and remotely operated 12.7 mm anti-aircraft machine gun.

This main battle tank is fitted with new fire control system of the Ukrainian T-84 MBT. All sights and aiming devices were also upgraded.

Bulat MBT has an upgraded powerpack. Vehicle is powered by a 5TDFM diesel engine, developing 850 hp. It is an uprated and more reliable version of the previous 5TDF. It might be also fitted with the 6TD diesel, developing 1000 hp.

T-64BM BULAT MAIN BATTLE TANK

SPECIFICATIONS

Crew	3 men
Dimensions and weight	
Weight	45 t
Length (gun forward)	9.22 m
Hull length	6.54 m
Width	3.6 m
Height	2.17 m
Armament	
Main gun	125-mm smoothbore
ATGW	9K119 (AT-11 Sniper)
Machine guns	1 x 12.7-mm, 1 x 7.62-mm
Elevation range	- 6 to + 14 degrees
Traverse range	360 degrees
Ammunition load	
Main gun	36 rounds
Mobility	
Engine	5TDFM diesel
Engine power	850 hp
Maximum road speed	60 km/h
Range	~ 500 km
Maneuverability	
Gradient	60%
Side slope	40%
Vertical step	0.8 m
Trench	2.85 m
Fording	1.8 m
Fording (with preparation)	5 m

MODERNIZATION CAPABILITIES

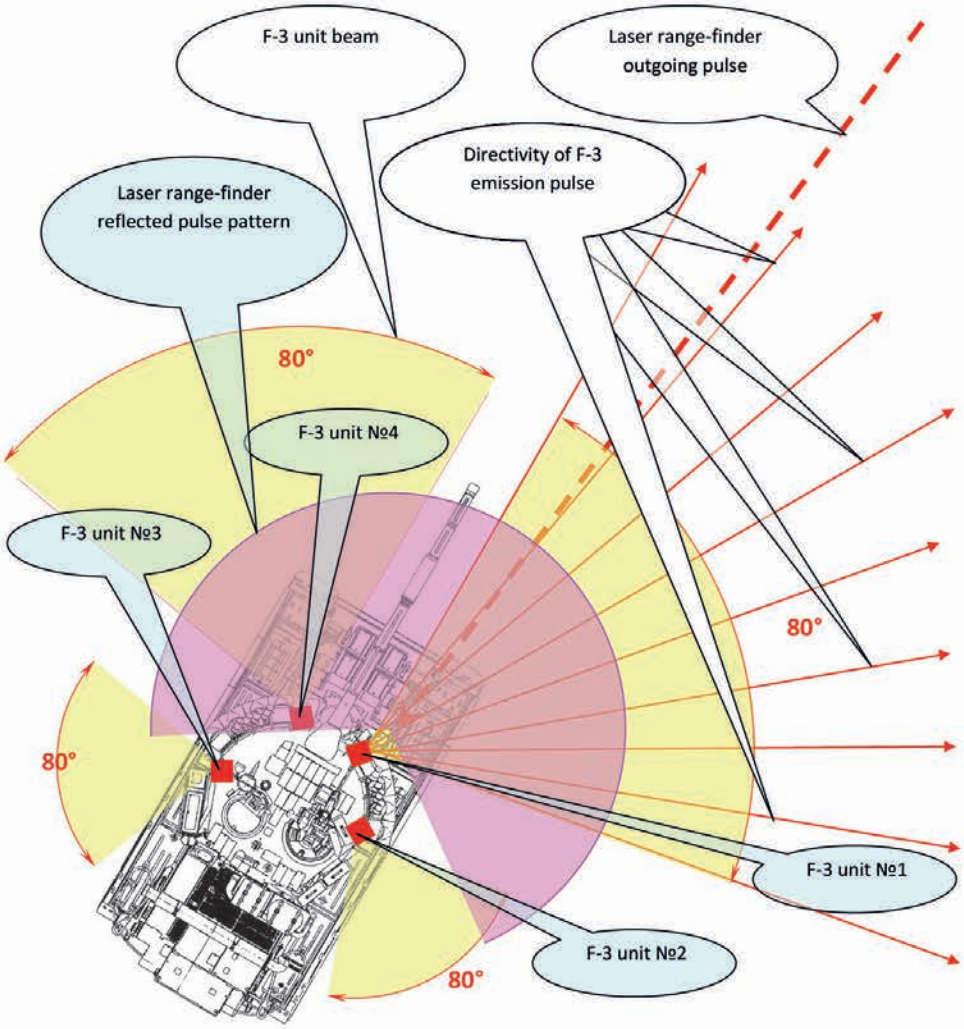
MODERNIZATION CAPABILITIES

UPGRADE OF THE ARMOURED VEHICLE PROTECTION SYSTEM

Our Company can provide the existing armoured vehicles and systems of the Customer with overhaul, life extension and various modernization programs. The mentioned programs could be accomplished using the facilities of Ukrainian OEMs and also by establishment of overhaul, repair, field repair and maintenance facilities in the country of the Customer with training of the Customers' Personnel and supply of General and Specialized Equipment.

Modernization programs include but not limited to:

- New generation of the Explosive Reactive Armour;
- Reliable Active Protection System;
- State-of-the-Art Optic-Electronic Protection System.



MODERNIZATION CAPABILITIES

DUPLET EXPLOSIVE REACTIVE ARMOUR MODULES

- Effective protection from all type of munitions
- High reliability
- Detonation free when hit by machine guns, shell splinters and incendiary mixtures
- Enhanced hermeticity and resistance to high temperatures
- Do not require maintenance
- Easy mounting

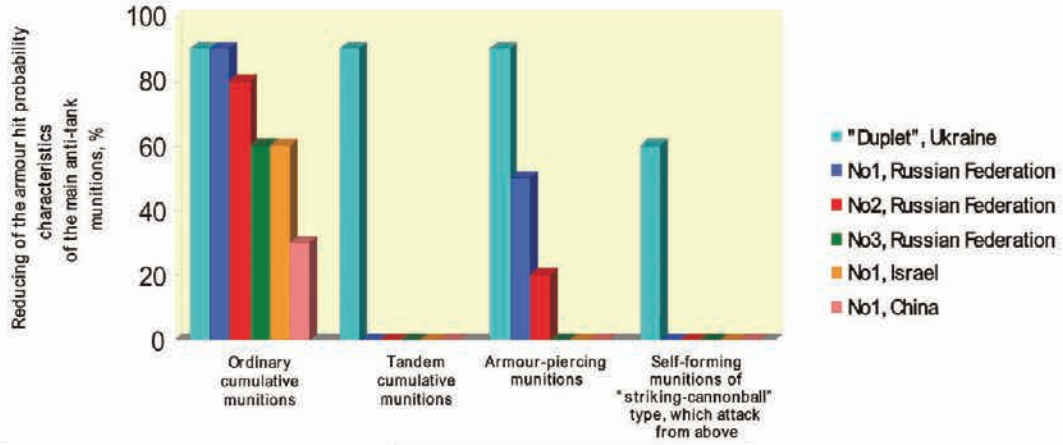
COMBAT AND OPERATIONAL CHARACTERISTICS

DUPLET Tandem dynamic protection system does not have analogues in the world. This is the only system that provides reliable protection of the armoured vehicles and stationary objects from the tandem cumulative munitions, armour-piercing sub-caliber projectiles and self-forming munitions of "striking-cannonball" type.

Analogueless integrated tandem dynamic protection system DUPLET is the only system which provides protection of the object from the tandem cumulative munitions at the azimuth firing angles of 90 °C. It is 1,5 ... 2 times more effective than any system of other world best manufacturers in regard to the unitary munitions influence. Thanks to the original containers' design and reduced demolition effect of the system elements the survivability is increased 2-3 times comparing to the known systems. Effectiveness of the tandem dynamic protection system DUPLET does not depend on the projectile hitting angle and point of hit. Side effect, as one of the important dynamic protection systems' evaluation criteria, is reduced to zero in the tandem dynamic protection system DUPLET. DUPLET system is manufactured at the plants of Ukraine only.

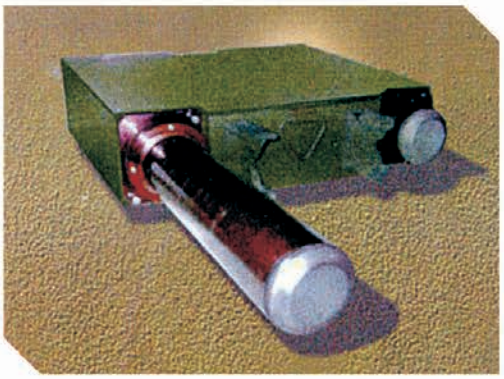
Size, mm	250x125x36 (250x125x26)
Weight, kg	2,8 (2,1)
Operation temperature, °C	-60 ... +70

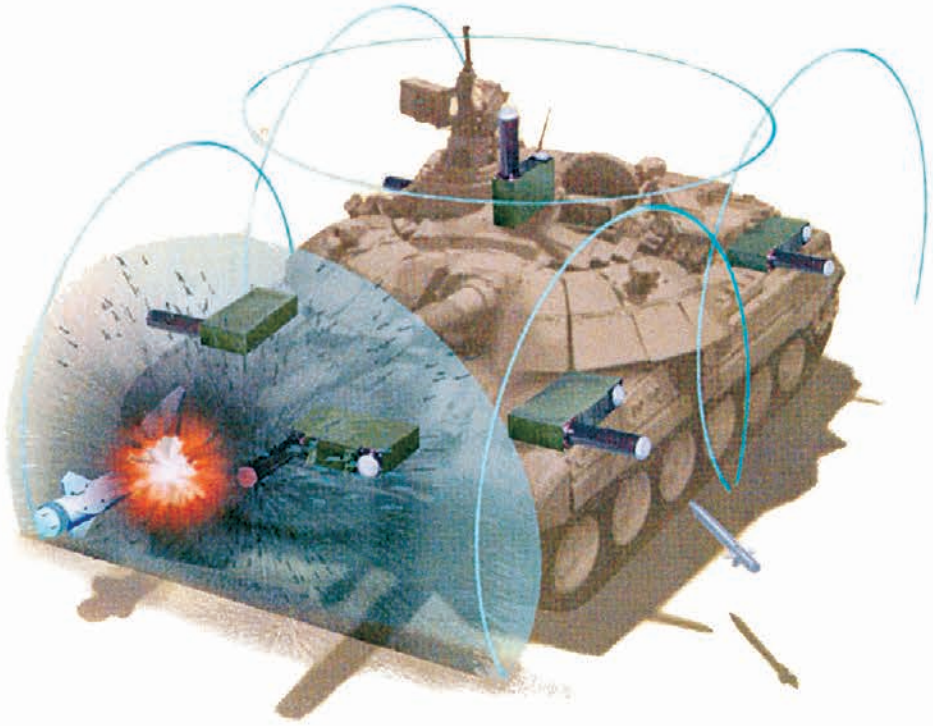
DUPLET modules require no special preparation for usage, maintenance and repair in operation.



MODERNIZATION CAPABILITIES

ZASLON ACTIVE PROTECTION SYSTEM





ZASLON active protection system is intended for highly efficient protection of stationary and mobile objects from anti-tank hitting means with depressed and diving trajectories of flight independently of guidance systems and type or warhead used.

Active protection system consists of autonomous operational modules (customer defines number of modules required) and control panel. Complex modular design allows installation on all types of serial and perspective combat vehicles.

SPECIFICATIONS

Target detection	radar
Protected area, degree:	
- horizontal	±150-180
- vertical	-6 +20
Target's speed, m/sec.:	
- minimum	70
- maximum	more than 1200
Weight (depends on protective level), kg	from 50 to 130
Power consumption, kW, max.	0,2
Readiness time, min.	0,1

MODERNIZATION CAPABILITIES

UNIT F-3 FANTOM

F-3 system is a new efficient protection of armoured vehicles which sends sham range signals to the enemy range finders.

This provides the following:

Amplitude-time selection-based fire control system as in T-80, T-84, T-90, etc. tanks cannot determine actual range to the target, consequently, hit probability is reduced almost to zero level.

The selection-based fire control system as in Abrams, Leclerc, Leopard etc. tanks cannot exactly determine actual range to the target, consequently, hit probability is reduced and shot preparation time increased.

Basic version of F-3 unit is manufactured with formed sham range signal exceeding real value by 400±10 m. On customer's choice any value of generated error in excess of real value can be installed.

Application: F-3 unit may be used to protect any objects of army, navy, air force, as well as engineering fortifications.

F-3 unit opposes traditional range-finding methods and has no analogues anywhere in the world in respect of performance.

SPECIFICATIONS

Emission wavelength, μm	1,06
Preselected distance between actual and false range, m	400±10
Duration of false range pulse, max., sec.	30·10-9
Operation angles relative to optical axis:	
- vertical	±20°
- horizontal	±40°
Energy density at 5 000 m distance within the range of operation angles, minimum, J/m2	10-10
Regeneration time after operation, max., ms	500
Overall dimensions within armoured turret, mm	260x172x131
Optical axis parallel to dimension, mm	260
Optical input-output window on face, mm	172x131
Weight within armoured cover, max., kg	12,5
Operating temperature range, °C	-40 to +60
Powered from DC mains, V	27
Power consumption, ord/max., A	0,4/3

MODERNIZATION CAPABILITIES

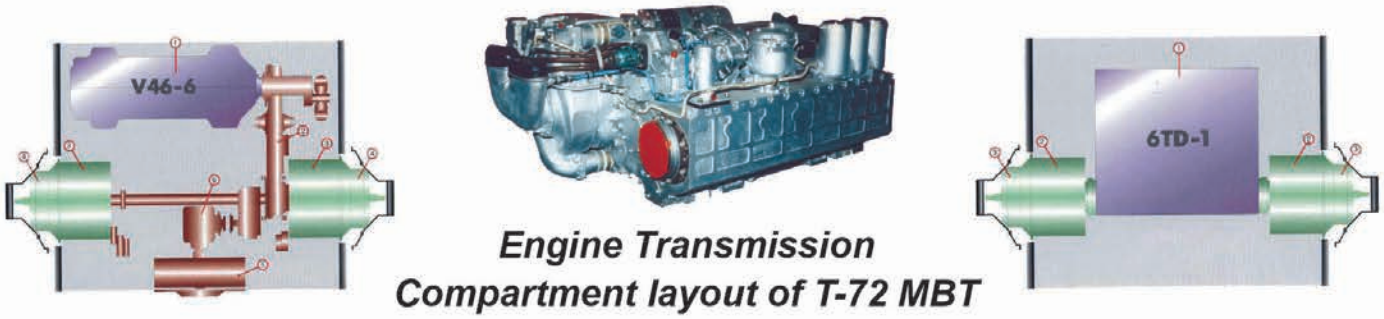
UPGRADE OF THE POWER-PACK

Modernization of the existing Main Battle Tanks, Armoured Personnel Carriers, Armoured Fighting Vehicles Power-Pack with the Two-Stroke Hybrid Turbo Opposed Piston Multi-fuel Diesel Engines with liquid Cooling System.

These Engines can operate using the diesel fuel, petrol, kerosene, jet fuel or their mix in any proportion.

The Power-Pack modernization program sufficiently increases Power-to-Weight Ratio. Due to the considerably smaller overall dimensions of the Engines, the modified Engine Transmission Compartment could be equipped with the Additional Power Units and Air Conditioner Systems completely protected and without changes of the external shapes and dimensions of the Armoured Vehicle.

Power takeoff of the mentioned engine is provided via both sides of the crank-shaft. Installation of the Engine doesn't require adjustment and centering of the Engine in the ETC.



Engine Transmission Compartment layout of T-72 MBT with standard Engine and New Engine.

High rotation speed of the Opposed Piston Diesels provides possibility of Direct Power Delivery without additional gears. Direct power delivery in the proposed variant provides sufficiently higher torque of the Power-Pack. Hybrid Turbine provides Engine operation in high temperatures without decreasing of Engine efficiency.

One of the main peculiarities of the mentioned Power-Pack is the Ejection Type Cooling System, High Efficiency Air Cleaning System, Special Air-intake device provides possibility of water obstacle fording up to 1,8 m without preparation, high Hermeticity of Engine Transmission Compartment.

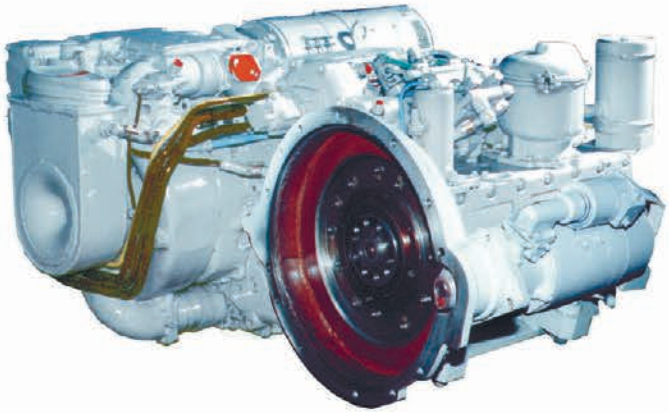
MODERNIZATION CAPABILITIES

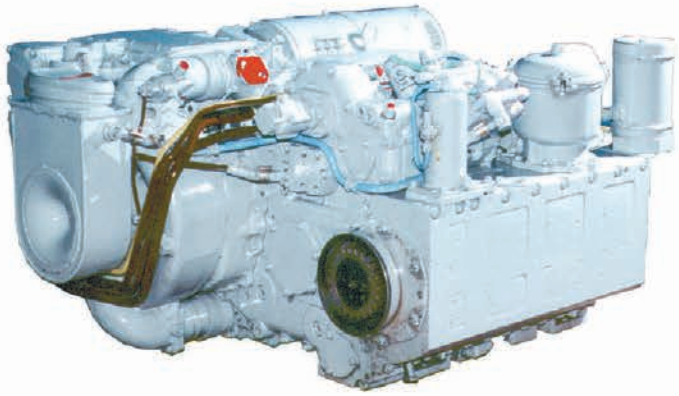
TWO STROKE TURBO-PISTON OPPOSED-PISTON HYBRID ENGINES FAMILY

The two-stroke, multi-fuel, turbo-piston engine family of Ukrainian manufacture embodies progressive scientific and technical approaches in its design. The engines of this series are not inferior to the world best tank engines on the performance and surpass these engines on a number of considerable characteristics. The engines high specific power-weight-overhaul characteristics, reliability and repairability have been proved by many years of operation in utmost harsh climatic conditions at temperatures from -40 °C to +50 °C. Due to small dimensions and increased power it becomes possible to install the air-conditioning system together with the auxiliary power unit into the engine-transmission compartment.

Modernization sets for all types of armoured vehicles in regard of increasing the mobility and power-to-weight ratio of the existing tanks and armoured vehicles can be offered.

SPECIFICATIONS:





3TD-2 engine

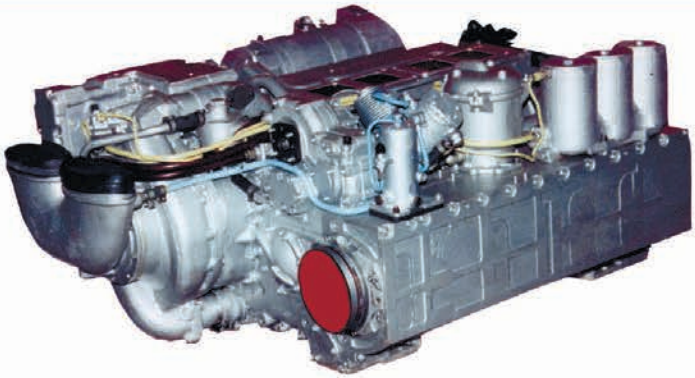
Rated output, hp	400
Engine speed, rpm	2600
Maximum torque, kg/m	117
Specific fuel consumption, gr/hp-hr	175
Dimensions, mm	
Length	1231
Width	955
Height	581
Weight, kg	850

3TD-4 engine

Rated output, hp	600
Engine speed, rpm	2500
Maximum torque, kg/m	149
Specific fuel consumption, gr/hp-hr	165
Dimensions, mm	
Length	1182
Width	955
Height	581
Weight, kg	800

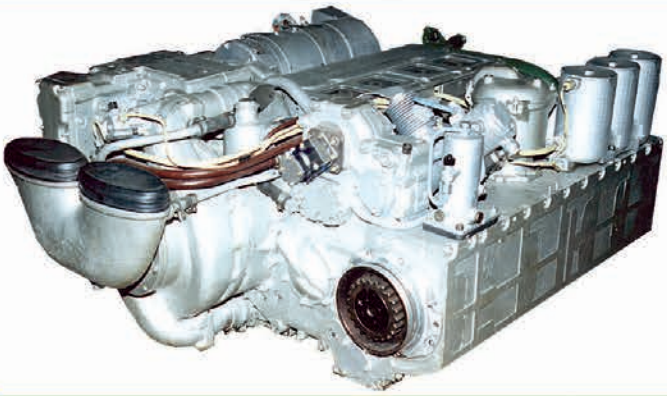
MODERNIZATION CAPABILITIES

TWO STROKE TURBO-PISTON OPPOSED-PISTON HYBRID ENGINES FAMILY



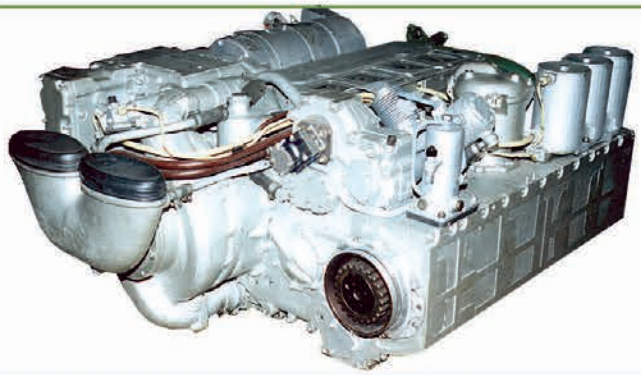
5TDF engine

Rated output, hp	700
Engine speed, rpm	2800
Maximum torque, kg/m	196
Specific fuel consumption, gr/hp-hr	178
Dimensions, mm:	
Length	1413
Width	955
Height	581
Weight, kg	1040
Engine-transmission compartment volume, m^3	2,64



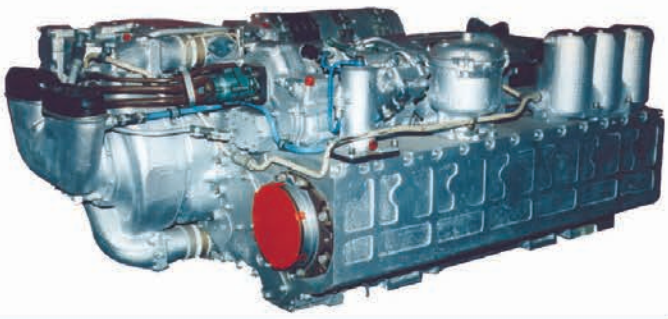
5TDFM engine

Rated output, hp	850
Engine speed, rpm	2800
Maximum torque, kg/m	202
Specific fuel consumption, gr/hp-hr	160
Dimensions, mm:	
Length	1413
Width	955
Height	581
Weight, kg	1040
Engine-transmission compartment volume, m^3	2,64



5TDFMA engine

Rated output, hp	1050
Engine speed, rpm	2850
Maximum torque, kg/m	233
Specific fuel consumption, gr/hp-hr	165
Dimensions, mm:	
Length	1413
Width	955
Height	581
Weight, kg	1080
Engine-transmission compartment volume, m^3	2,64

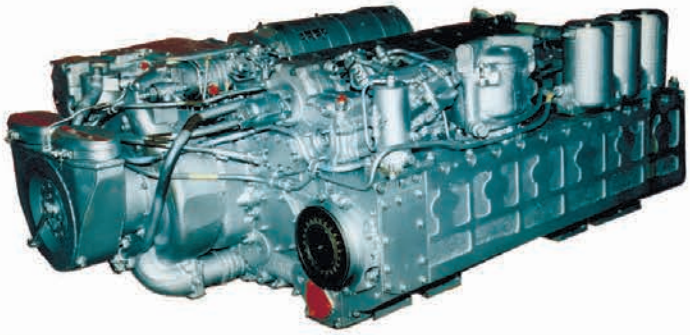


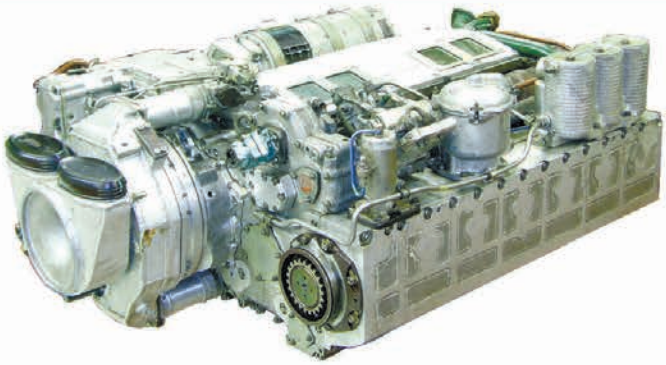
6TD-1 engine

Rated output, hp	1000
Engine speed, rpm	2800
Maximum torque, kg/m	242
Specific fuel consumption, gr/hp-hr	158
Dimensions, mm:	
Length	1602
Width	955
Height	581
Weight, kg	1180
Engine-transmission compartment volume, m^3	3,1

MODERNIZATION CAPABILITIES

TWO STROKE TURBO-PISTON OPPOSED-PISTON HYBRID ENGINES FAMILY



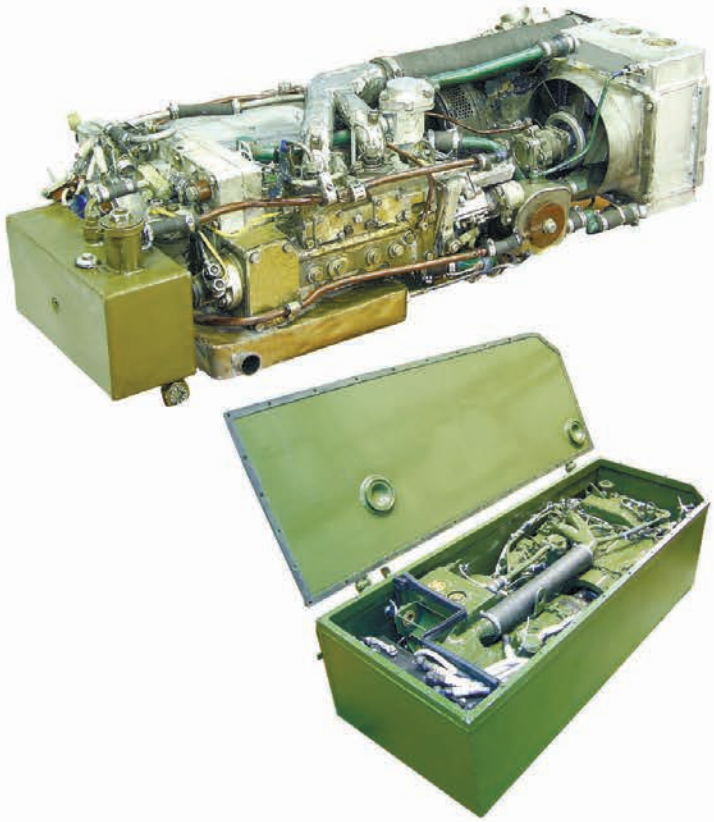


6TD-2E engine

Rated output, hp	1200
Engine speed, rpm	2600
Maximum torque, kg/m	282
Specific fuel consumption, gr/hp-hr	160
Dimensions, mm:	
Length	1602
Width	955
Height	581
Weight, kg	1180
Engine-transmission compartment volume, m^3	3,1

6TD-3 engine (experimental)

Rated output, hp	1400
Engine speed, rpm	2850
Maximum torque, kg/m	307
Specific fuel consumption, gr/hp-hr	160
Dimensions, mm:	
Length	1698
Width	955
Height	581
Weight, kg	1210
Engine-transmission compartment volume, m^3	3,2



EA-10 Auxiliary Power Unit

Max power, kW	10
D.C. voltage, V	28,5
Rated speed, rpm	4100
Fuel rate at max power, kg/hr	3,8
Dimensions, mm	
Length	1300
Width	495
Height	315
Dry weight, kg	250
Control system	Electric, remote
Uninterrupted operating time, hr	24

MODERNIZATION CAPABILITIES

UPGRADE OF THE ARMAMENT COMPLEX AND FIRE CONTROL SYSTEM

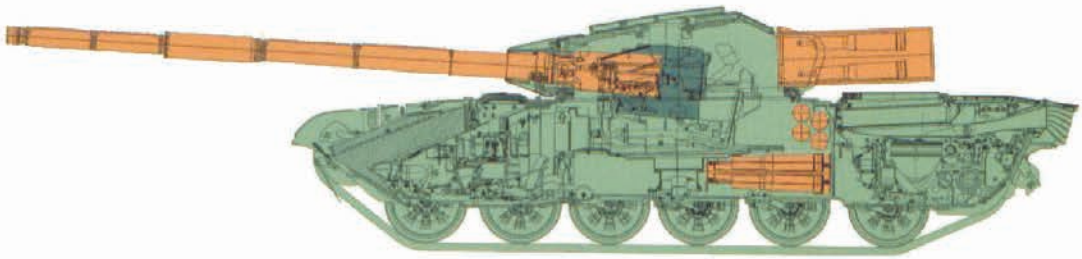
Our Company can offer modernization of the armament complex and fire control system of armoured vehicles providing ability to fire guided weapons through the bore channel, extended ranges of detection and identification of the target, TI ability.

Upgrade of firepower of the existing armoured vehicles with additional fire systems in particular:

- Automatic Grenade Launcher;
- Guided Missile Systems;
- Anti-Aircraft Systems.

Integration of additional fire systems into the existing fire control systems and installation of separate complex fire control systems to the existing armoured vehicles.

Installation of automatic loading mechanism for tanks significantly increases fire rate of the vehicle, even comparing with the main battle tanks of Leopard-2F5 or Abrams M1A2 types. The automated loading mechanism is installed into the developed tank's turret niche. The capacity of the automated loading mechanism varies depending on the tank's type.



COMPUTER-BASED FIRE CONTROL SYSTEM FOR MODERNIZATION OF T-62 AND T-55 TANKS

Colour mega-pixel video camera is installed into the eyepiece of the sight ТШ-2 (TSh-2) (telescope folding sight) or ТШС (TShS) (telescope folding sight standard) already available with tank.

Colour picture monitor is provided along with functional keyboard and on-board control computer with vast computational and data capabilities for monitoring and processing, integrated via information network with measurement and angle-mismatching stabilizer unit. Weather condition and powder charge temperature sensors by means of the electrooptical module with range finder and thermal imaging camera installation on the gun mantlet are offered.

Proposed systems allows:

- formation of aiming mark and range-finder dot on the video monitor display;
- communication between the system component units via unified information network;
- independent stabilization of the range of visibility vertically and horizontally by the signals of angular mismatching in the stabilizer (by means of compensational displacements of images from video camera on display);
- optical and mathematical estimation of range to target;
- calculation of angular corrections owing to the firing conditions (ballistics);
- accurate automated guidance of the weapon on the target by means of introduction angular corrections in the stabilizer;
- fire approval at approximation of the gyroscope angular mismatching signals to the desired value;
- guidance on a target in the range of ТШС (TShS) vision not only by the vertical axis, but also on the horizontal one, when putting the gun to loading position;
- digital zoom of images from the video cameras on the display screen.

The installed system considerably increases probability and speed of target hitting after the first shot, protects the tank's equipment and communications to the maximum, provides connections of the installed equipment according to the series uniform information network, which makes the tank modernization simple, uncostly and efficient.

TANDEM-2 COMBAT VEHICLE FIRE CONTROL SYSTEM

TANDEM-2 system is intended to control weapons of infantry combat vehicles (BMP), armoured personnel carriers (BTR), and other lightly armoured vehicles using:

- automatic 30 mm cannon;
- automatic grenade launcher;
- 7,62 mm coaxial machine gun;
- anti-tank missile complex.

The first samples of the system successfully passed tests at the test ranges of armed forces.

TANDEM-2 system provides for:

- detection and observation of ground targets on the background of the underlying surface with the help of TV cameras with two fields of vision at meteorological visibility range of 10 km at day and night (min. illuminance, 5x10-3 lx) at ranges:

Tank, BMP, BTR

at day - 6 ... 10 km

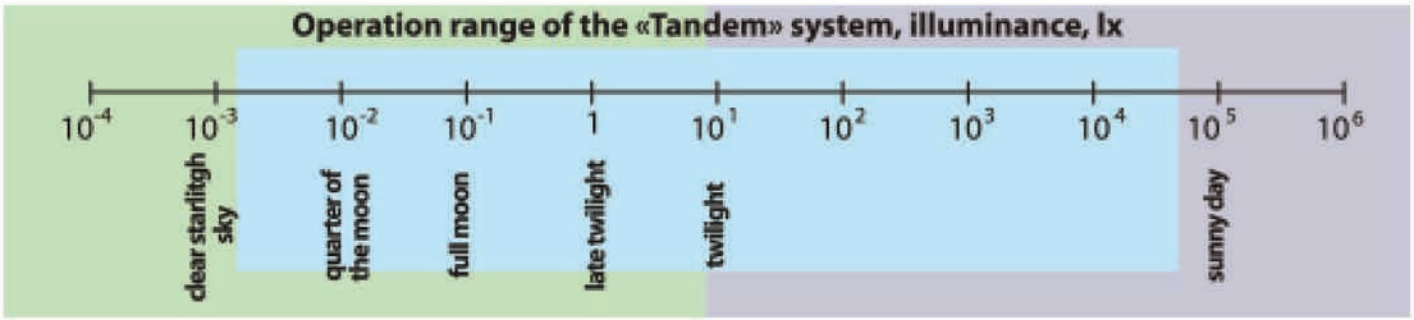
at night - 1,2 ... 2,0 km

Group of people

at day - 2,4 ... 4,6 km

at night - 0,6 ... 0,9 km

- displaying ground targets image and surrounding situation as well as service alphanumeric information on TV screen;
- measurement of distance to the detected target by laser range-finder with accuracy within 5 m;
- range-finder and TV channels electronic adjustment from the operator's workplace;
- selected weapon aiming angles automatic determination and displaying of their numeric values on display;
- combat vehicle mechanisms' control, including automatic commands issuance, to ensure beyond the vehicle superstructures passage when aiming weapon systems;
- sighting of the target and missile when firing from anti-tank missile complex;
- automatic self-testing of the equipment;
- infrared imager and video-recorder connection availability.

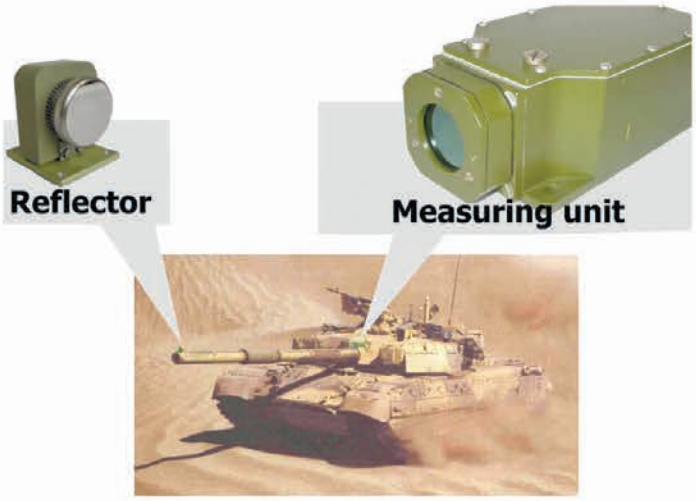


MODERNIZATION CAPABILITIES

SUIT-1 OPTOELECTRONIC SYSTEM

FOR THE BARREL BENDING MEASUREMENT

The system measures current value of the barrel bending of armoured and artillery armaments which appears as a result of the barrel heating during fire, irregular heating under the solar radiation effect, and also mechanical deformations of the barrel. The electric signal proportional to the measured banding value is transmitted to the fire control system that allows to indemnify the firing errors by correcting the aiming angles. The system can be adapted to different artillery armaments. Thus the firing accuracy is several times increased.



SPECIFICATIONS

Range of angles measurement, mrad.	5 to +5
Measuring error, mrad., no more than	±0,1
Limited measurement frequency, Hz	1
Dynamic range of output voltages, V	5 to +5
Power supply voltage, V	24 ± 3
Operating temperature range, ^{0}C	-40 to +60

GARANT RADIO CONTROL LINKS SUPPRESSION SYSTEM

Garant System is designed for radio suppression of various electronic tools, radio links of fixed, mobile and portable radios, receiving channels for cordless phones, cellular communication systems, as well as to protect movable objects (moving convoys and single vehicles) and stationary objects from radio-controlled explosive devices (mines, bombs, etc.).

This task is solved by radiation of an interfering signal in all frequency range, where it is possible to use these radio links management. The system is designed on the basis and taking into account the operational experience of similar purpose product, which was used by Ukrainian peacekeeping force in the Middle East region. Use of this equipment allowed to neutralize several attempts to hit moving convoys with radio-controlled land-mines (mines exploded after convoys passed, i.e. – outside of suppression zone).

SPECIFICATIONS

Working frequency range	20 - 2500 MHz
Type of noise	broadband barrage
The total integrated output noise power	230 W
Suppression distance (depending on the parameters of suppressed radio)	75-5000 m
Power	1 kW
Power supply	11,5 – 14 V
Ambient temperature	-40 °C to 60 °C

COMBAT MODULES

RAZOR GUN STATION

RAZOR gun station has been designed to equip a wide range of combat vehicles, emplacements, small ships and boats of the coast guard and is supposed to easily defeat armoured targets, firing points, manpower and firing at air targets.

Razor GS provides abilities to observe the surrounding terrain, water surface and coastal environment, measurement of angular coordinates and coordinates of target for its destruction.

It has a built-in ability to transfer target coordinates to Tactical Automated Fire Control System GIS Arta to request fire support. The transfer can be performed via radio to Motorola DMR standard.

Weaponry options:

1) 7.62 mm machine gun
2) 12.7 mm machine gun
3) 30mm Grenade Machine Gun
4) Combined option (Machine gun + Grenade Machine Gun + 2 x RPG)

The observation and sighting:

- Color camera with variable zoom up to x22
- Thermal imaging camera (optional)
- Laser Rangefinder (optional)
- Color LCD display 10”
- Identification and classification of targets up to 5 km
- The ability to determine and transmit target coordinates to fire control system GIS Arta

Weaponry Control:

- Horizontal: 360° without limiting number of revolutions
- Vertical: from -10° to + 55°
- Speed-guided mode: 60°/s horizontal and vertical
- Precision-guided mode: 0.05°/s
- Gyro-stabilization (optional)
- Wireless remote control up to 500m (optional)

Dimensions (LxWxH), mm: 900 x 600 x 700
Weight: 180 kg

COMBAT MODULES

IVA WEAPON STATION

Iva light unmanned weapon station (LWS) is designed to combat lightly-armoured targets, fixed firing-points, manpower and helicopters.

The main competitive advantages of Iva LWS:

- open configuration management of weapon system and software of weapon control system (WCS);
- universality, allowing installation on a wide range of mobile platforms (chassis) and stationary objects;
- efficiency, equal to analogues, competitive cost;
- low weight and overall size of the system.

Competitive advantages of Iva LWS are achieved with:

- use of a principle of a modular construction that does not require significant rearrangement or replacement of units when changing the weapon structure and eases servicing;
- use of the most common and ordinary infantry systems as well as managed anti-tank weapons;
- use of modern element base;
- use of own WCS software.

Variants of Iva LWS weapons attachment:

Variant 1

- machine gun NSV-T 12.7 - 1 unit or heavy machine gun KPV-T 14,5 - 1 unit

Variant 2

- machine gun NSV-T 12,7 - 1 unit or heavy machine gun KPV-T 14,5 - 1 unit
- automatic grenade launcher AGS-17/UAG-40 - 1 unit

Variant 3

- machine gun NSV-T 12,7 - 1 unit or heavy machine gun KPV-T 14,5 - 1 unit
- machine gun PKT - 7,62

Variant 4

- automatic gun of 23 mm caliber, type 2A14

Variant 5

- automatic gun of 23 mm caliber, type 2A14
- machine gun PKT - 7,62

Variant 6

- other models of weapons, including NATO standards.

SPECIFICATIONS

Thermal Imaging Channel	
Ground object with front projection 2,3x2,3 m	
Detection	4 km
Identification	1.5 km
TV Channel	
Ground object with front projection 2,3x2,3 m	
Detection	10 km
Identification	3.3km

Range measuring to tank-like target (front projection 5x5 m)	160-7000 m
IVA CM warm-up time from cold position	not more than 10 s
IVA CM warm-up time of stabilization system	not more than 2 min
Module weight	185 kg

BM-7 PARUS WEAPON STATION

The weapon station is equipped with armament system including 30mm automatic gun, 7.62mm co-axial machine gun, 30mm automatic grenade launcher, anti-tank guided missiles system installed on the platform stabilized in two planes. Weapon station is equipped with optical-television sight system. Information is displayed on the gunner's and commander's monitors arranged on working stations of armoured vehicle chassis.

Remote-controlled system and outside combat module provides enhanced protection of the crew, more comfortable conditions in crew compartments (weapon station is located outside which prevents contamination with gases).

SPECIFICATIONS

Armament:	
Gun:	ZTM-1 or 2A72
Caliber, mm	30
Ammunition allowance, pcs.	300
Machine gun:	KT or PKT
Caliber, mm	7,62
Ammunition allowance, pcs.	2000
Grenade launcher:	AG-17
Caliber, mm	30
Ammunition allowance, pcs.	149
Anti-tank guided missile:	"Barrier"

Ammunition allowance, pcs.	4
Additional equipment:	«LINKEY» self-screening system
Fire control system, complete with:	
Weapon stabilizer	
-Type	Biplanar, electromechanical "Track" Sighting System
-Type TV(or TV&IR)	Day-and-night, with integrated laser rangefinder
- Number of control channels	1 or 2

KASTET COMBAT MODULE

Kastet combat module is an in-depth modernization of Shkval combat module.

The combat module is designed for arming the newly created and modernization of the existing armoured vehicles of light and medium weight class, as well as for installation on river boats and sea-going ships, fortifications and etc.

Armament system integrated in the combat module allows fighting manpower, armoured vehicles and low-altitude subsonic targets.

Combat module Fire control system (FCS) is designed on the basis of a multi-channel optical and TV sighting complex. The complex comprises thermal imaging, TV and optical channels, laser range-finder channel and ATGM targeting channel. Automatic target tracker are digital image processing are implemented in the FCS, ballistic computer processes target angular speed.

SPECIFICATIONS

ZTM-1 Automatic Cannon	
Caliber	30 mm
Firing rate	330 rds/min
Maximum terrestrial fire accuracy range	with APT and APIT projectiles 2000 m with HEI and FT projectiles 4000 m
Direct fire range	With APT projectiles at 2-110 m target elevation
Shooting aerial targets flying at subsonic speeds	Altitude 2000 m, range 2500 m
Armour piercing performance	At a distance of 1000 m at 60 degrees angle with ZUBR6 APT projectile - 18 mm, with HVAP projectile - 28 mm
Reloading	Manual or electromechanical
Power supply	Separate double belt

Automatic Grenade Launcher KBA117	
Caliber	30 mm
Ammunition type with fragmentation grenade	VOG-17
Firing rate	50-400 rds/min
Sight shooting range	1700 m
KT-7,62 Machine Gun	
Caliber	7.62 mm
Firing rate	250 rds/min
Sight shooting range	2000 m
“Barrier” ATGM	
Firing range, minimum/maximum	100 m/5000 m
Guidance system	Semi-automatic by laser beam
Warhead types	Tandem hollow-charge, high-explosive fragmentation
Armour piercing performance	Not less than 800 mm of dynamic protection

BLIK-2 COMBAT MODULE

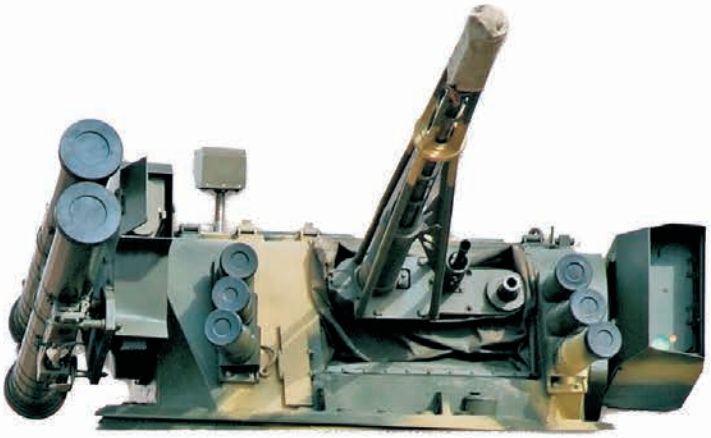
Machine gun-grenade module is designed to attack manpower, vehicles and ground objects fire 7.62 mm, 12,7 mm machine guns, 30mm grenade. There is the possibility of machine guns firing at air targets at altitudes up to 1000m. Operation of the module is a remote control at a distance of up to 50m. The operating temperature range is between -40 and +55°C.

SPECIFICATIONS

Combat weight/ t	0,35
Dimensions	2200 / 1400 / 1018
Armament, BLIK-2 overhead weapon station:	
Machine gun, calibre, mm	**NSVT -12.7**
Firing range, m	2000
Shooting mode	150+150
Machine gun, calibre, mm	**KT-7,62 (PKT)**
Firing range. m	1500
Shooting mode	250+1000
Automatic grenade launcher	**30 mm KBA 117 (AG-17)**
Firing range. m	1700
Shooting mode	29+29

COMBAT MODULES

BM-3 SHTURM



SPECIFICATIONS

Armament:	
Gun:	ZTM-1 or 2A72
Caliber, mm	30
Ammunition allowance, pcs.	400
Machine gun:	KT or PKT
Caliber, mm	7,62
Ammunition allowance, pcs.	2000
Grenade launcher:	AG-17
Caliber, mm	30
Ammunition allowance, pcs.	87
Anti-tank guided missile:	Barrier
Ammunition allowance, pcs.	4
Fire control system, complete with:	
Weapon stabilizer	
-Type	Biplanar, electromechanical Track Sighting System
-Type TV(or TV&IR)	day-and-night, with integrated laser rangefinder
- Number of control channels	1 or 2
Panoramic observation system	Panorama

BM SHKVAL

SPECIFICATIONS

Armament:	
Gun	ZTM-1 or 2A72
Caliber, mm	30
Ammunition allowance, pcs.	400
Machine gun	KT or PKT
Caliber, mm	7,62
Ammunition allowance, pcs.	2000
Grenade launcher	AG-17/UAG-40
Caliber, mm	30/40
Ammunition allowance, pes.	87
Anti-tank guided missile	Barrier
Ammunition allowance, pcs.	4
Fire control system, complete with:	
Weapon stabilizer	
-Type	Biplanar, electromechanical Track Sighting System
-Type TV(or TV&IR)	day-and-night, with integrated laser rangefinder
- Number of control channels	1 or 2

COMBAT MODULES

SHABLYA

RWS “SHABLYA” was developed as part of efforts to a sudden Russian invasion and received instant recognition and praise with ukrainian Armed Forces for its reliability, instant force multiplier, personnel protection and firing accuracy.

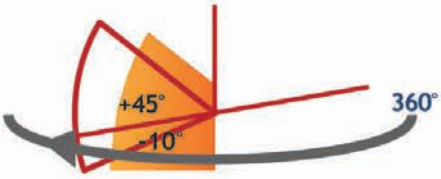
This combat module is designed both for stationary and mobile tasks, with rapid installation of different medium caliber weapons.

24/7 Real-Time lookout for threats in both day-light, IR/Thermal and Audio spectrum. Security and military personnel are able to achieve real-time battlefield awareness while remaining protected in an environmentally and battle safe location. Platform rotation allows for up to 360° surveillance.

Wide-angle and long focal lenses allow for wide field of view, with the ability to zoom in instantly on a possible threat. High-Resolution Thermal camera video overlay allows for instant visual threat detection over long distances. Optional Digital Array Radar extends detection to aerial targets and targets beyond visible distance.

On-screen stadiametric rangefinder provides intuitive elevation scale for different ranges. Overall platform stability, combined with precision targeting and accurate aiming controls provides excellent grouping over high distances even with extended bursts of fire.

- Lethal and Non-lethal weapons
- Emplacement can take up to 5 minutes
- The weight of the platform (without ammo) - less than 150 kg
- 8 hour battery life
- Start/Restart Time: 3 sec
- Operating temperature range: -60°C to +45°C



SHABLYA

SPECIFICATIONS

Sensors

Turret sight	3 cameras
Angle of view	Coaxial
Wide lens	30°
Narrow	15°
Long	7°
Zoom	Software
Day/night	Low light high sensitivity cmos 1/2'' full hd 3m pixel
Architecture	3 hrs
Latency	20 km / hr

Dimensions

Length	700 mm
Width	706 mm
Height	680 mm
Weight	80±10 kg
Weight without ammunition	130±10 kg

Weapons

7.62 mm	1000 rounds
12.7 mm	400 rounds
7.62*51mm NATO	1000 rounds
12.7*99mm NATO	400 rounds
Missiles for ATGM launcher	Two missiles
Smoke grenade launcher	Up to eight

Operating features

Swing radius elevation	+45° – 45°
Elevation speed Traverse	N x 360°
Power supply	220 VAC
UPS Power	24 VDC

WEAPON SYSTEMS

BARRIER VEHICLE-MOUNTED ANTI-TANK MISSILE SYSTEM

SPECIFICATIONS

Maximum range, m	100-5000
Flight time at maximum range, sec	23
Guidance system	semiautomatic by laser beam
Warhead: - type - armour penetration behind ERA, mm	 tandem hollow-charge no less than 800
Weight, kg: - missile in container - sight	 29,5 14,6
Overall dimensions, mm: - missile calibre - container length - container outer diameter	 130 1360 140
Operating temperature range, °C	-40 to +60

BARRIER vehicle-mounted anti-tank missile system installed on the fighting vehicle turret (ICV, APC) is intended to destroy stationary and moving modern armoured targets with combined, carried or monolithic armour including ERA (explosive reactive armour), and also pinpoint targets like weapon emplacements, a tank in a trench, light-armoured objects and helicopters.

KOMBAT ANTI-TANK GUIDED MISSILE

SPECIFICATIONS

Maximum range, m	5000
Flight time at maximum range, sec	16.3
Guidance system	semiautomatic by laser beam
Warhead: - type - armour penetration behind ERA, mm	 tandem hollow-charge no less than 750
Weight, kg	30.45
Overall dimensions, mm: - missile calibre - main part lenght - tail part lenght	 125 675 408
Operating temperature range, °C	-40 to +60

KOMBAT anti-tank guided missile is intended for firing from tanks T-80UD, T-84, T-72, modernized T-64 against stationary and moving modern armoured objects with combined, carried or monolithic armour including ERA (explosive reactive armour), and also against pinpoint targets like weapon emplacements, a tank in a trench, light-armoured objects and helicopters.

STUGNA ANTI-TANK GUIDED MISSILE

SPECIFICATIONS

Maximum range, m	5000
Flight time at maximum range, sec	16.8
Guidance system	semiautomatic by laser beam
Warhead: - type - armour penetration behind ERA, mm	 tandem hollow-charge no less than 550
Weight, kg	21.1
Overall dimensions, mm: - missile calibre - round length	 100 1015
Operating temperature range, °C	-40 to +60

STUGNA anti-tank guided missile is intended for firing from T-55 tank or anti-tank artillery gun MT-12 against stationary and moving modern armoured objects with combined, carried or monolithic armour including ERA (explosive reactive armour), and also against pinpoint targets like weapon emplacements, a tank in a trench, light-armoured objects and helicopters.

ANTI-TANK GUIDED MISSILE

100 mm-calibre

Anti-tank guided missile is intended for firing from BMP-3 against stationary and moving modern armoured targets with combined, carried or monolithic armour including ERA (explosive reactive armour), and also against pinpoint targets like weapon emplacements, a tank in a trench, light-armoured objects and helicopters.

SPECIFICATIONS

Maximum range, m	5000
Flight time at maximum range, sec	15.1
Guidance system	semiautomatic by laser beam
Warhead: - type - armour penetration behind ERA, mm	 tandem hollow-charge no less than 550
Weight, kg	21.6
Overall dimensions, mm: - missile calibre - round length	 100 1180
Operating temperature range, °C	-40 to +60

ANTI-TANK GUIDED MISSILE

105 mm-calibre

SPECIFICATIONS

Maximum range, m	5000
Flight time at maximum range, sec	17
Guidance system	semiautomatic by laser beam
Warhead: - type - armour penetration behind ERA, mm	 tandem hollow-charge no less than 550
Weight, kg	25,2
Overall dimensions, mm: - missile calibre - round length	 105 1015
Operating temperature range, °C	-40 to +60

115 mm-calibre

SPECIFICATIONS

Maximum range, m	5000
Flight time at maximum range, sec	14,3
Guidance system	semiautomatic by laser beam
Warhead: - type - armour penetration behind ERA, mm	 tandem hollow-charge no less than 550
Weight, kg	25,2
Overall dimensions, mm: - missile calibre - round length	 115 1196
Operating temperature range, °C	-40 to +60

KVITNIK

CANNON-LAUNCHED GUIDED PROJECTILE WITH SEMI-ACTIVE LASER HOMING

KVITNIK ensures effective hitting of tanks, armoured infantry combat vehicles, armoured vehicles, missile launchers, self-propelled artillery platforms, artillery-type weapons in stationary or moving state, located openly or in shelters; command and control centres, communications centres etc.; bridges, temporary bridges, defensive fortifications; water surface targets (combat, landing or transport vessels) etc.

SPECIFICATIONS

Caliber	152/155 mm
Firing range	up to 20 km
Warhead type	high-explosive fragmenting
Weight of explosive substances	not less than 8 kg
Shell length	no more than 1200 mm
Shot weight	no more than 48 kg

KONUS ANTITANK GUIDED MISSILE

KONUS antitank guided missile, when fired from T-84-120, T-72-120 tanks, is intended to destroy stationary and moving armoured targets with combined, carried or monolithic armour, including ERA (explosive reactive armour), and also against pinpoint targets like weapon emplacements, a tank in a trench, light-armoured objects and helicopters.

SPECIFICATIONS

Maximum firing range, m	5000
Flight time at maximum range, s	16,3
Guidance system	semiautomatic by laser beam
Warhead:	
- type	tandem hollow-charge
- armour penetration behind ERA, mm	not less than 700
Round weight, kg	28
Overall dimensions, mm:	
- missile calibre	120
- round length	1074
Operating temperature range, °C	from -40 to +60

FALARICK 90 ROUND COMPRISING ANTITANK GUIDED MISSILE

FALARICK 90 antitank guided missile is intended for firing from the LCTS90 weapon system gun against stationary and moving armoured targets with combined, carried or monolithic armour, including ERA (explosive reactive armour), and also against pinpoint targets like weapon emplacements, a tank in a trench, light-armoured objects and helicopters.

SPECIFICATIONS

Maximum firing range, m	4000
Flight time at maximum range, s	14
Guidance system	semiautomatic by laser beam
Warhead:	
- type	tandem hollow-charge
- armour penetration behind ERA, mm	not less than 550
Round weight, kg	20,05
Overall dimensions, mm:	
- missile calibre	90
- round length	977
Operating temperature range, °C	from minus 40 to +60

FALARICK 105 ROUND COMPRISING ANTITANK GUIDED MISSILE

FALARICK 105 antitank guided missile is intended for firing from the CT-CV™ weapon system gun against stationary and moving armoured targets with combined, carried or monolithic armour, including ERA (explosive reactive armour), and also against pinpoint targets like weapon emplacements, a tank in a trench, light-armoured objects and helicopters.

SPECIFICATIONS

Maximum firing range, m	5000
Flight time at maximum range, s	17
Guidance system	semiautomatic by laser beam
Warhead:	
- type	tandem hollow-charge
-armour penetration behind ERA, mm	not less than 550
Round weight, kg	24
Overall dimensions, mm:	
- missile calibre	105
- round length	1015
Operating temperature range, °C	from minus 40 to +60

GUIDED MORTAR SYSTEM

Guided mortar armament system with 120-mm high-precision guided bomb for combat usage from 2B11 mortar is designed for destruction of modern armoured and unarmoured, moving and stationary equipment, and also pinpoint engineering structures.

The system includes:

- 120-mm high-precision bomb;
- laser target designator/ranger that ensures targets detection, monitoring and identification in the area, their spherical coordinates measurement (range, position angle and elevation) and target designation using target laser illumination;
- installed device that provides initial data programming in the bomb control system;
- portable radio transmitter that ensures digital and analog connection between a lookout station and firing post.

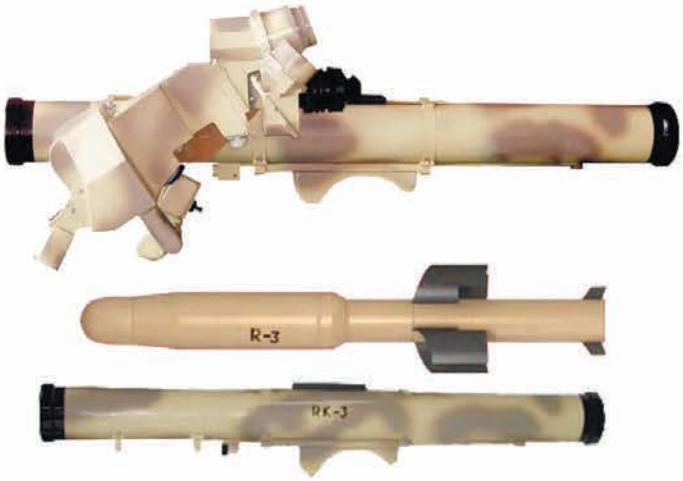
SPECIFICATIONS

Range, m	1000-7500
Bomb control system (on the terminal part of the trajectory)	laser semiactive homing guidance
Target hit probability	0,75-0,8
Guided bomb calibre, mm	120
Guided bomb weight, kg	27
Guided bomb length, mm	1430
Warhead type	high-explosive
Operating temperature range, °C	-40 to +60

CORSAR LIGHT PORTABLE ANTI-TANK MISSILE SYSTEM

SPECIFICATIONS

Maximum range, m	5000
Flight time at maximum range, sec	14.3
Guidance system	semiautomatic by laser beam
Warhead: - type - armour penetration behind ERA, mm	 tandem hollow-charge no less than 550
Weight, kg	25,2
Overall dimensions, mm: - missile calibre - round length	 115 1196
Operating temperature range, °C	-40 to +60



CORSAR light portable anti-tank system is intended to destroy stationary and moving modern armoured targets and other objects with combined, carried or monolithic armour including ERA (explosive reactive armour), and also pinpoint targets like weapon emplacements, a tank in a trench, light-armoured objects and helicopters.

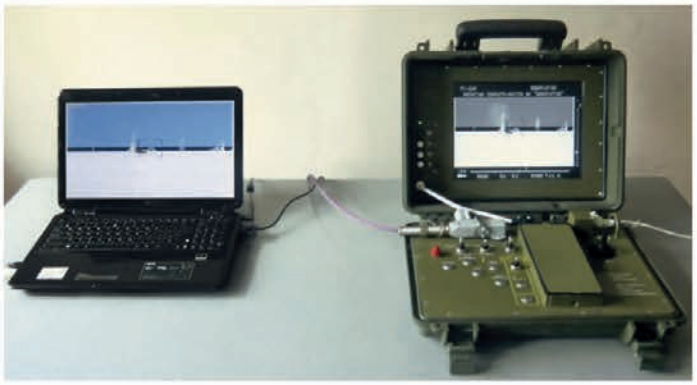
SKIF PORTABLE ANTI-TANK MISSILE SYSTEM

SKIF portable anti-tank missile system is intended to destroy stationary and moving armoured targets with combined, carried or monolithic armour including ERA (explosive reactive armour), and also pinpoint targets like weapon emplacements, a tank in a trench, light-armoured objects and helicopters. System's advantages lie in its capability to aim the missile at target from closed emplacements and shelters to reduce the risk of hitting of the gunner by enemy's retaliatory fire.

SPECIFICATIONS

Maximum range, m - at day time - at night time	 100-5000 100-3000
Flight time at maximum range, sec	23
Guidance system	by laser beam with automatic target tracking by television channel
Warhead: - type - armour penetration behind ERA, mm	 tandem hollow-charge no less than 800
Weight, kg: - missile in container - launcher - sight - remote control - thermal imaging module	 29,5 32 15,5 10 6
Overall dimensions, mm: - missile calibre - container length - container outer diameter	 130 1360 140
Operating temperature range, °C	-40 to +60

SKIF-UTS1.10 TRAINING SIMULATOR



The Simulator is intended for training, shaping and improvement of practical skills to work with the SKIF man portable anti-tank missile system in a class room conditions.

SPECIFICATIONS

Type of computing device	IBM compatible personal computer
Operating system	WINDOWS 7
Language of training	Ukrainian, English, Russian
Readiness time for operation, min	not more than 5
Power source voltage, V	220 ±20
Weight, kg:	
- remote control panel	14,0
- PC (laptop)	not more than 3,9
Operating temperature range, °C	from +5 to +40

KBA.117 AUTOMATIC GRENADE LAUNCHER

SPECIFICATIONS

Caliber	30 mm
Initial flight speed of grenade	185 m/s
Rate of fire	400 shots/min
Minimum distance of mounted shooting	1000 m
Maximum height of the trajectory	905 m
Sighting range	1700 m
Tape capacity	29 grenades
Length	840 mm
Weight of the machine without ammunition	18 kg
Weight of the equipped tape	14,5 kg

KBA.117 30 mm automatic grenade launcher is designed to hit manpower and weapons of the enemy, equipment and transport located outside shelters (in open trenches, gullies, ravines, on reverse slopes of heights).

UAG-40 AUTOMATIC GRENADE LAUNCHER

UAG-40 is a portable automatic grenade launcher placed on a tripod before shooting. Tripod's design allows firing from unprepared sites.

Portability level and no need to prepare operating site allows quick change of firing position both in open air and in urban environment.

UAG is ultra-high-speed and can utilize all NATO types of grenades.

The optical, infrared, photo visual or electronic sights can be attached to UAG-40.

Sophisticated engineering design decisions used in the product determined its main advantages: high accuracy at shooting in bursts, lowered recoil impulse, high reliability and simplicity in production and operation.

SPECIFICATIONS

Length, mm	960
Weight (without grenade), kg	15
Total weight with tripod, not more than, kg	30
Bore, mm	40
Length of tube, mm	400

Grenade launching speed, m/sec	240
The maximum shooting range, m	2200
Fire mode	Single/automatic
Shooting rate, round/min	400

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