

OSA-1T

Short Range Surface-to-Air
Missile System



THE 9K33-1T OSA-1T SHORT RANGE SURFACE-TO-AIR MISSILE SYSTEM

The *9K33-1T OSA-1T* self-propelled *Short Range SAM system* is designed to defend Army units, industrial and military installations from all types of aerial attack assets flying at low and medium altitudes and possessing the RCS of 0.03 m² and above. The *OSA-1T* enables acquisition and identification of targets on the move and at halts, as well as engaging the target with one or two

missiles from stationary positions or short halts. The total independence and mobility of the system is achieved by installing the control equipment and missiles on the same wheeled amphibious high cross-country capacity chassis.

COMPOSITION

The *OSA-1T* comprises combat and technical support assets.

Combat assets include:

- *9A33-1T* combat vehicle (CV)
- *9M33M2(3)* surface-to-air missiles (SAM)

Technical support assets include:

- *9V210-1T* maintenance vehicle (MV)
- type *9V914-1T* alignment vehicle (AV)
- *9T217-1T* transportation and loading vehicle (TLV)
- *9V242-1T (AKIPS)* automatic mobile check-up and testing station
- *9F16M2* ground equipment kit (GEK)

COMBAT ASSETS

**9A33-1T
COMBAT VEHICLE**

**9M33M2(3)
SURFACE-TO-AIR MISSILES**

TECHNICAL SUPPORT ASSETS

**9T217-1T TRANSPORTATION
AND LOADING VEHICLE**

**9V210-1T
MAINTENANCE VEHICLE**

**9F16M2 GROUND
EQUIPMENT KIT**

**9V242-1T (AKIPS) AUTOMATIC
MOBILE CHECK-UP AND
TESTING STATION**

**TYPE 9V914-1T
ALIGNMENT VEHICLE**

COMBAT VEHICLE

The CV is the key asset of the SAM system.

The CV is built on a three-axle self-propelled chassis – *MZKT-6922* outfitted with a powerful diesel engine, navigational, topographic siting, life-support, communication and power-supply equipment.



9A33-1T Combat Vehicle (MZKT-69222)

The CV crew comprises five men.

The CV equipment includes:

- radars:
 - target acquisition radar
 - target tracking radar
 - two-channel missile sighting radar
 - two-channel command transmission radar
- computing device *SRP-1T*
- crew commander's automated workstation *ARM-1T*

- automatic launch system and launch device
- functional check and combat crew training equipment (FC & CTE)
- electro-optical system (*EOS-1T*)
- power supply system (PSS)
- air conditioning and heating system *SKO-1T*
- self-propelled wheeled chassis *MZKT-69222*
- combat crew workstations



Combat Crew Workstations

SURFACE-TO-AIR GUIDED MISSILES

The single-stage solid-propellant SAM is designed for destruction of aerial attack assets by detonation of its high-explosive fragmentation warhead. Throughout its service life, the missile is stored in the transportation-and-launch container (TLC).



9M33M2(3) Surface-to-Air Missiles

The missile airframe represents a canard control configuration. The missile rudders and wings in the TLC are located X-wise, i.e. at a 45° angle relative to the container walls.

The missile motor is a dual-mode single-chamber rocket motor using solid propellant.

The missile radio fuze enables proximity detonation of the warhead near the target, at the moment when the target can be destroyed most effectively.

TRANSPORTATION AND LOADING VEHICLE

The TLV is designed to load (unload) missiles into/from the TLC of the CV, as well as to temporarily store and transport them.

The TLV can perform the following operations:

- re-loading missiles from the TLV to the CV and back
- re-loading missiles from a truck to the CV and the TLV and back
- re-loading missiles to the ground equipment kit bogey and back
- lifting missiles from the ground to the CV and TLV and back
- refueling the CV with fuel stored in the TLV's additional tanks
- removing the launch device from the CV
- replacing defective missiles on the CV, when the TLV is fully loaded



9T217-1T Transportation and Loading Vehicle

MAIN CHARACTERISTICS OF THE TLV

Quantity of missiles transported	1-24 pcs
Total volume of the additional fuel tanks	2×500 l
Time of CV loading (unloading)	5...8 min
Lifting capacity of the crane	850 kg

AUTOMATED MOBILE CHECK-UP AND TESTING STATION

The AKIPS is intended to provide automated comprehensive check-ups of the missiles' on-board equipment and training of missile magnetrons in the field.

The AKIPS is placed on a 6x6 chassis.

The AKIPS check-up and testing station comprises:

- missile check-up equipment
- electric air pump unit
- air-supply equipment
- SPTA kit
- ancillary equipment and instruments



9V242-1T AKIPS

ALIGNMENT VEHICLE

The AV provides the alignment of the CV's antenna systems, check-ups and adjustment of certain systems of the CV.

The AV comprises:

- a telescopic mast installed on a 6x6 truck chassis
- alignment instruments
- electric equipment
- cable equipment
- a single SPTA kit



9V914-1T Alignment Vehicle

MAINTENANCE VEHICLE

The MV is designed to provide maintenance and current repairs of the combat vehicle equipment. The MV can service four combat vehicles in the field, or in the repair shop.



9V210-1T Maintenance Vehicle

GROUND EQUIPMENT KIT

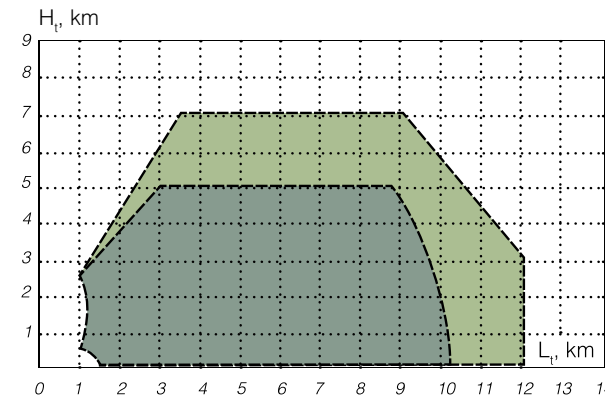
The GEK is designed to provide servicing of missiles in the field.

The GEK is a mobile kit. The entire process equipment is containerized (packaged) for transportation, thus the GEK is transportable by trucks.

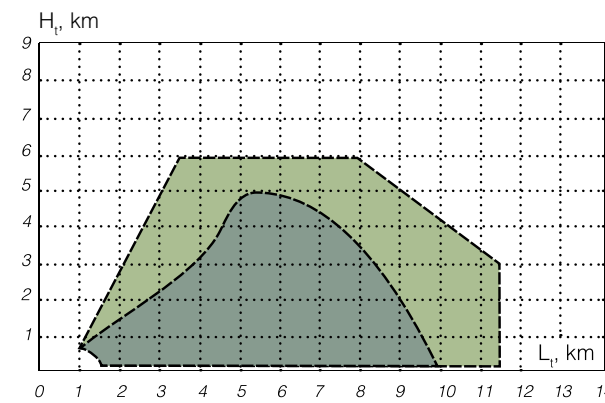
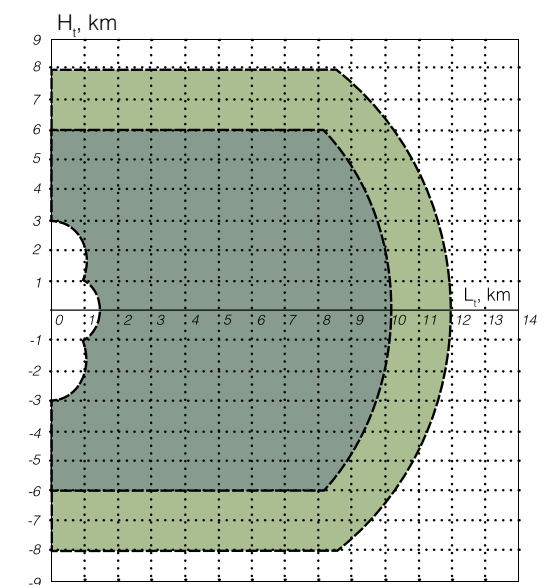
MAIN COMBAT CHARACTERISTICS OF THE OSA-1T SAM SYSTEM

Maximum range of targets engaged	12 km
Altitude of targets engaged	0.025 – 7 km
Maximum cross range	8 km
Maximum speed of targets engaged	700 m/s
Target kill probability with one SAM	0,85
Minimal RCS of targets detected	0.03 m ²
Maximum acquisition range of targets with RCS=1 m ²	40 km
Emplacement/displacement time	5 min

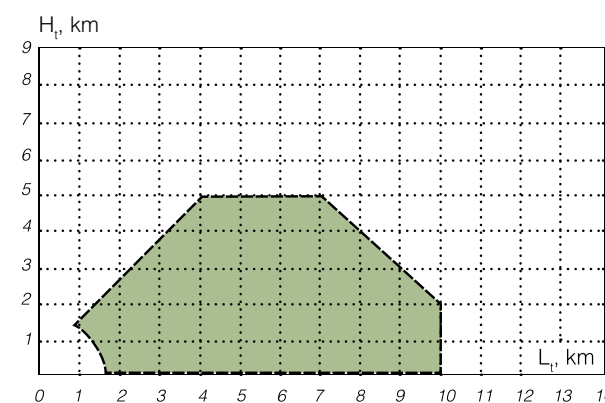
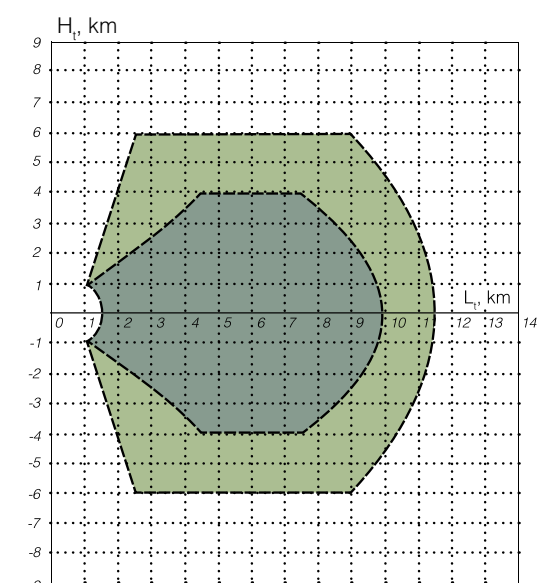
THE OSA-1T KILL ZONE



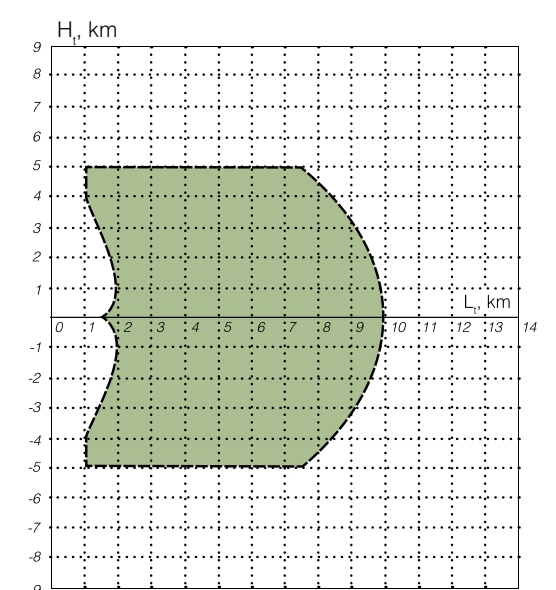
«OSA-AKM» and «OSA-1T» SAM systems kill zones, firing at approaching targets flying at $V_t \leq 300$ m/s



«OSA-AKM» and «OSA-1T» SAM systems kill zones, firing at approaching targets flying at $300 < V_t \leq 500$ m/s



«OSA-1T» SAM system kill zone, firing at approaching targets flying at $500 < V_t \leq 700$ m/s



– «OSA-AKM» SAM system
 – «OSA-1T» SAM system



**20A, Platonova str., Minsk,
220005, Republic of Belarus
Tel/fax: (+375 17) 296-62-06, 296-62-07
e-mail: info@tetraedr.com
<http://www.tetraedr.com>**

EUROSATORY



PRODUCTS OF TETRAEDR AT INTERNATIONAL EXHIBITIONS