

## R-73E

### Short-Range Air-to-Air Missile

The R-73E missile is designed to intercept and destroy in close air combat manoeuvrable manned/unmanned air attack and reconnaissance assets by day and night, from all directions, in head-on and tail-on engagements, against the earth background and in aggressive ECM environment.

The missile features an all-aspect IR homing system, a proximity fuse and a rod-type warhead.

The R-73E is one of the world's first all-aspect short-range missiles. Owing to the sensitive IR



seeker, the missile is capable of engaging not only receding, but also approaching and colliding-course air targets.

The missile can attack targets in any initial position at designation angles of  $\pm 45$  degrees flying at speeds of up to 2,500 km/h at altitudes ranging from 0.02 to 20 km. Minimum range of launch is only 300 m when fired in the rear hemisphere.

The R-73E missile is superior to the world's best counterparts in terms of basic characteristics on which depends its combat effectiveness in dogfight.

The missile is designed to arm the MiG-21-93, MiG-29, Su-39, Su-27 and Su-30 aircraft.

#### Basic specifications

Max launch range, km	30
Weight, kg:	
launch	105
warhead	8.0
Target g-number	12
Fighter-type target hit probability	0.6-0.8
Dimensions, m:	
length	2.90
diameter	0.17
horizontal stabiliser span	0.51

## R-33E

### Long-Range Air-to-Air Missile

The R-33E missile is designed to engage single and multiple targets within all-round attack zone in all weather conditions, with natural interference, enemy ECM, and evasive manoeuvring against the earth background or in free airspace by day and night.

It features a normal aerodynamic configuration with upper fins folded to fit suspension under the fuselage. In the initial flight stage the missile is guided by the inertial system, and in the terminal stage by the semi-active radar homer. The missile has a solid propellant, single-chamber two-mode engine and a high-explosive fragmentation warhead.

Four missiles are attached to recessed fuselage hardpoints. Launch of the four missiles ensures simultaneous engagement of up to four targets flying at different altitudes with different speeds, as well as of a single target by several missiles. The targets are engaged at altitudes ranging from 0.05 to 28 km.



The R-33E is designed to arm the MiG-31E aircraft.

#### Basic specifications

Max launch range, km	120
Weight, kg:	
launch	490
warhead	47
Target g-load	4
Fighter-type target hit probability	0.65
Dimensions, m:	
length	4.15
diameter	0.38
horizontal stabiliser span	1.1

## R-27

## Medium-Range Air-to-Air Missile Family



The R-27 air-to-air guided missile is designed to intercept and destroy air targets by day and night, in adverse weather conditions, from all directions, against the earth and sea background, in spite of severe ECM, counterfire and evasive manoeuvring.

The missile's design combines canard and pivoting wing configurations, with tandem destabilisers.

The R-27R1 missile guidance system includes a semi-active radar homing head and inertial navigation guidance with radio correction.

The R-27T1 is fitted with an IR seeker.

The R-27ER1 and R-27-ET1 missiles have an increased power engine.

The R-27 missile locks on a target at any designation angle within  $\pm 50$  degrees for the semi-

active radar homer and  $\pm 55$  degrees for the IR seeker. The carrier g-load can attain 5g at missile launch. The missile can engage targets flying at speeds of up to 3,500 km/h at altitudes ranging from 0.02 to 27 km. Maximum target elevation (depression) in the carrier level flight can reach 10 km. Minimum tail-on range of launch is 500 m.

The R-27 is designed to arm the MiG-29, Su-27 and Su-30 aircraft. The R-27 missiles with homing heads of various types increase integral anti-jamming capability and combat effectiveness of the weapon system.



## Basic specifications

	R-27R1	R-27ER1	R-27T1	R-27ET1
Max launch range, km	60	62.5	65	80
Weight, kg:				
launch	253	350	245	343
warhead	39	39	39	39
Target g-load	8	8	8	8
Fighter-type target hit probability	0.6-0.8	0.6-0.8	0.6-0.8	0.6-0.8
Dimensions, m:				
length	4.08	4.775	3.80	4.49
diameter	0.23	0.26	0.23	0.26
horizontal stabiliser span	0.97	0.97	0.97	0.97

# RVV-AE

## Medium-Range Air-to-Air Missile

The RVV-AE missile is designed to engage fighters, attack aircraft, bombers, helicopters and military transport aircraft by day and night, in all weather conditions, from all directions, against the earth and sea background with enemy ECM and evasive manoeuvres.

The RVV-AE missile has an active radar homing head and inertial guidance system with radio correction, which allows in-flight target acquisition and re-targeting. The active radar homer improves autonomy of the carrier and ensures effective implementation of the "fire-and-forget" principle.

### Basic specifications

<i>Max launch range, km:</i>	
<i>against fighter-type targets</i>	50
<i>against bomber-type targets</i>	80
<i>Weight, kg:</i>	
<i>launch</i>	175
<i>warhead</i>	22.5
<i>Target g-load</i>	9
<i>Fighter-type target hit probability</i>	0.6-0.7
<i>Dimensions, m:</i>	
<i>length</i>	3.60
<i>diameter</i>	0.20
<i>horizontal stabiliser span</i>	0.70



The RVV-AE missile family features a modular design with a rod-type warhead.

The RVV-AE can engage targets flying at speeds of up to 3,600 km/h at altitudes ranging from 0.02 to 25 km. Minimum range of launch in the rear hemisphere is 300 m. Maximum target elevation (depression) at the missile carrier level flight can attain 10 km. The RVV-AE launch does not impose limitations on the carrier's g-load.

# STRELETS

## Control Equipment and Launch Module Set for Igla-Type Guided Missiles

The Strelets set is designed to provide automated remote single or salvo launching of the Igla-S, Igla and Igla-1 missiles from different ground-based, air- and sea-borne carriers.

It incorporates:

- universal launch module designed to carry two Igla-type missiles and four power supply sources and to ensure pre-launch operations, including lock-on by the seeker and launch
- communication and control equipment that receives commands, selects module for combat operation and provides comms links with fire control systems platforms
- kit of connectors.



### Basic specifications

Number of launch modules/missiles	up to 4 / 8
Reaction time (from 'On' to missile launch), s	6.6
Weight with fully armed module, kg	72
Weight of control equipment, kg	20, max

# IGLA-S

## Guided Missile



### Basic specifications

Target engagement range, m	up to 6,000
Altitude of targets engaged, m	10 to 3,500
Airspeed of targets engaged, m/s	
head-on	up to 400
in pursuit	up to 320
Type of optical seeker	two-spectrum, jamming-proof
Type of warhead	HE, impact-delay action, proximity
Weight of missile/warhead, kg	11.7 / 2.5
Into-action time	not more than 13
'Fire-and-forget' principle	provided
Missile length, mm	1,625
Missile calibre, mm	72

The Igla-S air-to-air guided missile equipped with a passive two-band IR seeker is designed to destroy day and night aircraft and helicopters as well as low-altitude and stealth targets of the cruise missile types and remotely piloted vehicles head-on and in pursuit at ranges of up to 6.0 km with a hit probability of 0.8 to 0.9.

High effectiveness of the missile is provided due to the proximity fuze and upgraded warhead, which allow destruction of the target not only in case of a direct hit, but also in case of near-miss.

The heat seeker provides reliable selection of a target in the electronic countermeasures environment (heat flares).