



R-60 Vympel (AA-8 «Aphid»)

General

The Vympel R-60 (NATO reporting name: AA-8 "Aphid") is a short-range lightweight infrared homing air-to-air missile designed for use by Soviet fighter aircraft. It has been widely exported, and remains in service with the CIS and many other nations.

The R-60 missile had an unusually short development time, with only four years passing from the beginning of its design to the beginning of its production -- the normal development process of Soviet air-to-air missiles typically required 8 to 9 years.

When introduced, the R-60 was one of the world's lightest air-to-air missiles, with a launch weight of 44 kg. It has infrared guidance, with an uncooled Komar (Mosquito) seeker head. Control is by forward rudders with large rear fins. The distinctive canards on the nose, known as "destabilizers," serve to improve the rudders' efficiency at high angles of attack. The R-60 uses a small, 3 kg tungsten expanding-rod surrounding a high explosive fragmentation warhead.

The weapon was one of the most agile air-to-air missiles until the advent of thrust vectored missiles like the R-73 and AIM-9X. The R-60 can be used by aircraft maneuvering at up to 9g against targets maneuvering at up to 8g. A tactical advantage is the short minimum range of only 300 m.

The MI-24P Hind helicopter can fit 2 x 2 R-60s on its middle pylons as a maximum.

Target Acquisition

The pilot needs to cool down the seeker 3 minutes prior to usage. Once the missile seeker is ready, acquisition is done by placing the target in the inner circle of the reticle until launch consent is achieved, the missile is then launched and no further guidance is necessary from the launching platform.

Employment Ranges

The maximum range of the missile is stated to be 8km. However, practical engagement ranges are 4 km or less.

The tactical advantage of the missile is its short minimum range of only 300 meters.

Susceptibility to countermeasures

VIS assesses the Aphid missile to be susceptible to infrared countermeasures based on the missile seeker technology and age.

Countertactics

Infrared flares in relative large amounts to blind the seeker, be on the lookout for a follow-up launch.

Destruction of the launching platform outside of 4km is advisable.

Defensive Maneuvers:

Maneuver to position the aircraft between flares and missile if able. A break turn with an additional amount of flares launched may spoof the missile.



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R-60 missile

Technical data

Dimensions

Length: 2.096 m

Diameter: 0.12 m

Wingspan: 0.39 m

Weight: 43.5 kg

Engagement envelope

Propulsion: Single-stage solid propellant rocket motor

Max speed: Mach 2.5

Flight time: 23 to 25 s

Range: 7 km maximum, 4 km practical, 300 m minimum

Launch altitude: 30 m to 20 km

Max G force: 7 G at launch, 42 G in flight



HUMINT photo x 5 zoom of a SYAF Mi-24 carrying at least 2 R-60 missiles