

PATRIOT

Overview

The PATRIOT is a surface-to-air guided air and missile defence system currently in use world-wide including in several NATO countries (Germany, Greece, the Netherlands, Spain and the United States).

History

The first PATRIOT air defence systems were deployed by U.S. Forces in the mid-1980s. During the first Gulf War, it was used to defend against the Iraqi Scud missile threat. The PATRIOT system has evolved over the years as the threat has changed and technology has advanced. The current PATRIOT variants are equipped with advanced interceptor missiles and high performance radar systems. PATRIOT stands for “Phased Array Tracking Radar to Intercept on Target”.



Role

The role of the PATRIOT is to defend against airborne threats as part of an integrated air and missile defence system. Notable characteristics of the PATRIOT system include a short response time, the ability to engage multiple targets simultaneously, good ground mobility, and the ability to resist electronic jamming.

System Description

PATRIOT systems have four operational functions: communications, command and control, radar surveillance and missile (interceptor) guidance.

A battery has six major components: a power plant, radar set, an engagement control station, launcher stations, the antenna mast group, and the interceptors (missiles) themselves.

- The Radar Set provides detection and tracking of targets as well as fire control. The phased array radar helps guide interceptors to their intended targets and is resistant to jamming.
- The Engagement Control Station calculates trajectories for interceptors and controls the launching sequence. As such, it communicates with the launcher stations and other PATRIOT batteries. It is the only manned station in a PATRIOT fire unit.

- The Launcher Stations transport and protect the interceptors (missiles) and provide the platform for the physical launch of the missile.
- The Antenna Mast Group is the main communications backbone for the Patriot unit.
- The Interceptor Missiles: PAC-2 is a proximity fusing missile, whereas PAC-3 has been specifically designed to intercept and destroy missiles by impacting them directly with kinetic energy - "Hit-to-Kill" technology.

Target Engagement

Once the PATRIOT missile is launched, it will be tracked by the phased array radar set.

As the interceptor missile approaches the target, its active seeker will steer the missile to the target. A PAC-2 Patriot missile will detonate in the vicinity of the threat missile whereas a PAC-3 will seek to impact the warhead of the threat ballistic missile.

Specifications

Variant: PAC-2 and PAC-3

Defended area: 15-20 Km against ballistic missiles

Missiles per launching station: 4 PAC-2, 16 PAC-3

Radar Range: 150+ Km

Speed: 5,000 Km/h

Flight Ceiling: 20+ Km

Missile Length: 5.2 m

Diameter: 25 cm

Weight: 320 Kg