

ARCHIVED REPORT

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HESA Shahed 278

Outlook

- The Shahed 278 received Iranian certification in 2012
- Three versions of the Shahed 285 attack helicopter are available

Orientation

Description. Single-main-rotor, single-turbine light commercial and military helicopter.

Sponsor. Iran Aircraft Manufacturing Industrial Company (HESA).

Status. Production.

Total Produced. Through 2017, at least eight Shahed 278s were produced (not including static/fatigue test articles), and at least eight Shahed 285s.

Application. Passenger transport, pilot training, law enforcement, border patrol, emergency medical services (EMS), and aerial photography.

Price Range. Estimated at \$800,000-\$900,000.

Contractors

Prime

Iran Aircraft Manufacturing Industrial Co (HESA)	28 km. Esfahan - Tehran Freeway, PO Box 83145-311 Shahin Shahr, Esfahan, Iran, Tel: + 98 311 2222028, Fax: + 98 311 22214219, Prime
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HESA Shahed 278**Technical Data****(Shahed 278)**

Design Features. Single-turboshaft-powered helicopter with a single twin-blade main rotor. The airframe is made of composites. The engine is housed in a casing above the fuselage, aft of the main rotor. The fuselage is extended by a tailboom featuring a twin-

blade tail rotor and a horizontal stabilizer. Landing gear are skid type. Other features include self-sealing fuel tanks and an engine particle separator.

The Shahed 278 can carry a pilot and up to four passengers in a 2 + 3 seating arrangement.

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Length	11.92 m	39.11 ft
Height	2.75 m	9.02 ft
Main rotor diameter	10.16 m	33.33 ft
Tail rotor diameter	1.57 m	5.15 ft
Weight		
Empty	682 kg	1,504 lb
Normal takeoff weight	1,451 kg	3,199 lb
Useful load	769 kg	1,695 lb
Capacities		
Fuel capacity	287 liters	75.8 U.S. gal
Performance		
Maximum level speed at SL	240 km/h	129 kt
Maximum climb rate at SL	762 m/min	2,500 ft/min
Service ceiling	6,400 m	21,000 ft
Range	340 km	183 nm
Propulsion		
Shahed 278	(1)	Rolls-Royce M250-C20B turboshaft engine rated 313 kW (420 shp).

Variants/Upgrades

Shahed 278. Standard production version. At least eight flying 278s have been produced.

Shahed OH-78. Light reconnaissance variant. The OH-78 is armed with a chin-mounted 7.62mm machine gun and two pylon-mounted M158/LAU-68 rocket pods. It is powered by the Rolls-Royce M250-C20B engine.

An OH-78 development aircraft has been converted from the second Shahed 278 helicopter.

Shahed 285. Single-seat attack helicopter variant of the Shahed 278. Unveiled in 2009, the Shahed 285 has a redesigned fuselage with a narrower forward section. The helicopter is armored, and its cabin and rotors are made of composite materials.

The 285 has a single 7.62mm machine gun in an undernose turret, and is equipped with a pair of side-

mounted weapons pylons. Armament can include automatic cannon, machine guns, rockets, and missiles.

The 285 is powered by a 420-shp Rolls-Royce M250-C20J turboshaft engine. In the past, Shahed program officials claimed to have secured access to new-build M250 engines via Canada.

Three versions of the 285 are available. The 285A is equipped with guns and rocket pods, and is intended for use in essentially a counterinsurgency role. The 285B is more heavily armed for wider combat use. The 285C is a naval version capable of carrying anti-ship missiles.

In May 2009, Iran's Islamic Revolutionary Guard Corps (IRGC) took delivery of a number of Shahed 285s. As many as six 285s were apparently delivered to the IRGC.

HESA Shahed 278

Shahed 478. Larger than the Shahed 278, the 478 is a planned variant intended for military applications. Design features of the 478 include a 10.7-meter (35-ft) diameter four-blade main rotor and a 650-shp Rolls-Royce M250-C30R turboshaft engine. The 478

can be armed with Nasr anti-ship missiles. The helicopter has a weapons payload of more than 1,000 kilograms (2,205 lb) at a gross weight of 2,040 kilograms (4,497 lb).

Program Review

Background. The initial Shahed 278 first flew in late 1997 or early 1998. By March 2001, this helicopter had accumulated 200 flight hours. At least seven additional flying 278s have been produced. Two airframes have also been built for static and fatigue testing.

In October 2002, the Shahed 278 publicly debuted at the Iran International Air Show. In April 2012, the 278 was granted certification by the Iran Civil Aviation Organization.

HESA claims that the 278 was designed entirely in Iran. The helicopter does, though, bear a strong resemblance to the Bell 206 JetRanger. A number of JetRangers, license-produced by Agusta prior to 1979, are in service with the Iranian military.

In September 2012, the U.S. District Court for the District of Columbia dismissed a trademark infringement lawsuit brought by Bell against Iran, HESA, and Iran Helicopter Support and Renewal Company. The lawsuit had claimed that the Shahed 278 and Shahed 285 were copies of the Bell 206. The court, however, ruled that it lacked jurisdiction over the matter.

The OH-78 light reconnaissance helicopter made its first flight in 2005. The OH-78 development aircraft was converted from the second Shahed 278 helicopter. It has since been undergoing flight, armament, and sensor trials.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1997-98	First flight of Shahed 278
Oct	2002	Public debut of 278 at Iran International Air Show
	2005	First flight of OH-78 development aircraft, a converted 278
May	2009	Initial deliveries of Shahed 285
Apr	2012	Iranian certification of Shahed 278
	2018	Production continues

Forecast Rationale

The exact number of Shahed 278 and Shahed 285 helicopters produced to date is difficult to determine, but it is known that at least eight examples of each model have been built so far. Production of the 285 in particular may be considerably higher than that, with a few sources indicating that around 35 Shahed 285s have been produced.

Both rotorcraft are built by Iran Aircraft Manufacturing Industrial Company (HESA). The Shahed 278 is a utility/transport helicopter. The Shahed 285 is derived from the 278, and is available as either a land-based light attack model or a maritime version. Pending further information, we are not presently issuing a forecast for the Shahed series of helicopters.

HESA is a subsidiary of Iran Aviation Industries Organization (IAIO), as is Iran Helicopter Support and Renewal Company (PANHA). The latter is developing a number of new rotorcraft, such as the four-seat, single-engine Sorena, which is designed for patrol and training missions, and the 14-seat, twin-engine Homa, which is a multipurpose machine that can be configured for unarmed utility missions or can be equipped with various weapons systems.

PANHA unveiled another new helicopter, the Saba-248, in March 2017. The twin-engine, eight-place Saba-248 is aimed at both the civil and military markets, and can be utilized in a variety of roles, including passenger and cargo transport, reconnaissance, search-and-rescue, air ambulance, and air taxi operations.

HESA Shahed 278

IAIO also produces the Toufan II attack helicopter. The Toufan II is alleged by various sources to be based on the Bell AH-1J. It is equipped with a number of indigenous systems, including a new electro-optical

system. In January 2013, the Iranian Army and the Islamic Revolutionary Guard Corps each took delivery of one Toufan II.

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