

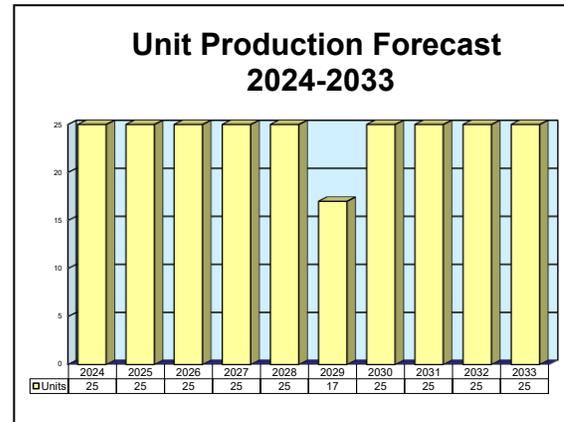
# ARCHIVED REPORT

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## Zulfiqar

### Outlook

- In full-rate production for Iranian Army and IRGC procurement
- Modernization and retrofit will likely be limited to standardization of the production design
- Forecast reflects full-rate serial production for Iran's Army and IRGC



### Orientation

**Description.** A main battle tank.

**Sponsor.** The Iranian Ministry of Defense, through the Islamic Revolutionary Guard Corps, sponsors the development and procurement of the Zulfiqar tank.

**Licensees.** None.

**Status.** Development through serial production.

**Total Produced.** Through 2023, we estimate the contractor produced at least 705 Zulfiqar tanks. This

figure includes several developmental tanks exhibiting an evolving configuration.

**Application.** Armored mobile weapons systems optimized for high-speed offensive and breakthrough operations, as well as defensive fire support.

**Price Range.** Based on the technology from which Iran has developed the Zulfiqar, we estimate it carries a 2024 unit price of \$4.613 million.

### Contractors

#### Prime

**Iran Defense Industries Organization (DIO)**

Pasdaran St, PO Box 19585-777, Tehran, Iran, Tel: + 98 21 22562883, Fax: + 98 21 22551961, Email: [marketing@diol.org](mailto:marketing@diol.org), Prime

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; [rich.pettibone@forecast1.com](mailto:rich.pettibone@forecast1.com)

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### Technical Data

**Note:** *The technical data available concerning the Zulfiqar tends to be fragmentary and often contradictory. Data and assessments in this report are subject to change as more reliable information on the Zulfiqar trickles out of Iran.*

**Crew.** Three: commander, gunner, and driver.

**Armor.** Photographic evidence suggests that the Zulfiqar armor suite consists of conventional welded steel alloy armor, with appliqué armor in critical areas. The Zulfiqar III variant also mounts Iranian-developed explosive reactive armor (ERA), according to military sources.

**Dimensions.** Data currently unavailable. Open-source reporting suggests the Zulfiqar is similar in size to the early-model M60 tank.

The turret is flat and rectangular, with a narrow mantlet and a sloped frontal arc. At least two cupola configurations appear in photographs. One is similar to the T-72; the other resembles an Israeli design. A turret basket mounted on the rear of the turret appears to be standard.

**Performance.** Data currently unavailable. Several sources credit the Zulfiqar with a top speed of approximately 70 kmph (43.5 mph). Such a speed would be considerably faster than either of the Zulfiqar's presumptive progenitors, the M60 and T-72 tanks. This information is therefore highly suspect.

**Engine.** Data currently unavailable. The Zulfiqar exhibits a rear engine deck and exhaust grill configuration indicative of an air-cooled diesel V-type engine. In fact, the configuration strongly resembles that of the M48 and M60 series main battle tanks. Iran's long association with the General Dynamics (formerly Teledyne Continental) AVDS-1790 series V-12 diesel engines that equip M48 and M60 tanks further supports this external evidence.

Available AVDS-1790 series engines generate 560 to 596 kilowatts (750 to 800 hp). In a tank the size of the

Zulfiqar, such a powerplant would yield a power-to-weight ratio in the 14- to 15-kilowatt-per-tonne (17 to 18 hp/ton) range.

**Gearbox.** Data currently unavailable.

**Suspension and Running Gear.** Photographic evidence indicates that the Zulfiqar employs a torsion bar suspension, with six double-tire roadwheels and five track-return rollers on each side. The drive sprocket mounts to the rear. The general appearance of the suspension and running gear suggests the Zulfiqar may mount components from M48/M60 series tanks, or copies thereof.

#### Armament

**Main Armament.** Various reports and photographic evidence indicate that the initial prototype Zulfiqar mounted a 105mm main gun – either the BAE Systems L7 or the U.S. license-produced version of the L7, the M68. Subsequent models of the Zulfiqar mount the Russian-designed 125mm 2A46 smoothbore main gun. The weapon is fully stabilized and can accommodate a wide range of ordnance.

**Secondary Armament.** Photographic evidence suggests that the mantlet of the Zulfiqar may be too narrow to accommodate a coaxially mounted machine gun. At least some Zulfiqar tanks feature a commander's cupola with a pintle-mounted 12.7x99mm (.50-cal) M2HB heavy machine gun. The tank may mount four smoke-grenade launchers on each side of the turret.

**Fire Control.** Data currently unavailable. Evidence suggests that the Zulfiqar employs a computerized fire control system with an integrated laser rangefinder and night vision equipment.

Various reports indicate that the fire control suite features a mix of Russian and European components, similar to those utilized in modernized T-72 MBTs, and that the suite grants the Zulfiqar fire-on-the-move capabilities.

### Program Review

**Background.** During the Iran-Iraq War (1980-1988), Iran made strenuous efforts to develop an indigenous arms industry. By 1990, Iran was operating a hodgepodge of tanks, including the following:

- The British Chieftain (in several marks)
- The American M47M, M48A5, and M60A1

- The Russian T-54, T-55, T-62, and T-72
- The Type 59 and Type 69-II from the People's Republic of China

In 1990, the Islamic Revolutionary Guard Corps established the requirement for a new indigenous tank. To aid the development process, the program reportedly

## Zulfiqar Archived FEB

incorporated various existing technologies into the new tank.

### *The Hidden Sword*

In April 1994, Iran revealed the Zulfiqar – named for the double-headed sword of Ali, the caliph of the prophet Muhammad. Iranian officials claim that the new tank was in production by 1995. However, only fragmentary data concerning the Zulfiqar are available, along with a few photographs.

**Description.** In general, the Zulfiqar appears to be an amalgamation of several tank designs, most notably the M60 and T-72.

### *Conventional Layout*

The Zulfiqar exhibits a standard layout. The driver sits in the right forward portion of the hull. In the turret, the commander sits to the right of the main armament; the gunner sits to the left. The engine and gearbox mount in the rear of the hull. Photographic evidence suggests the commander's station features periscopes for an all-around observation capability.

The suspension and running gear, powerplant, and basic hull design reflect the considerable influence of the M48 and M60 main battle tanks. Photographic evidence suggests the Iranians may have either copied or transferred many hull-related components from the M48 and M60 to the Zulfiqar.

**T-72 Main Gun.** The Zulfiqar mounts the Russian-designed 125mm 2A46 smoothbore tank gun, reportedly with its automatic loading system. Iran would have access to this ordnance technology through its T-72 inventory. Employment of the 2A46 suggests the Zulfiqar fire control system might use the T-72 fire control suite as its basis. Various reports indicate that the Zulfiqar fire control suite also employs European components.

Although the Zulfiqar is being produced for active frontline deployment with Iranian forces, the developmental process for the vehicle remains ongoing. Concurrent with the Zulfiqar program, Iran is also proceeding with its T-72Z program – modernizing T-54/55/Type 59 tanks to a T-72-equivalent configuration.



Zulfiqar Prototype

Source: [www.acig.com](http://www.acig.com)

## Funding

The Iranian Ministry of Defense, through the Islamic Revolutionary Guard Corps, funds the development and procurement of the Zulfiqar tank.

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### Contracts/Orders & Options

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Not available, as the Iranian Ministry of Defense has not released contractual information regarding this program.



Zulfiqar Production Model

Source: [www.jedsite.info](http://www.jedsite.info)

### Worldwide Distribution/Inventories

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**Export Potential.** Minimal. Iran's pariah status in the international community and its relative inexperience in the already glutted international tank market will be major handicaps to the Zulfiqar's export potential.

**Countries.** Iran (705).

### Forecast Rationale

The combined forces of the Iranian Army and Iran's Islamic Revolutionary Guard Corps maintain an inventory of at least 1,700 active main battle tanks of varied design and origin. Open-source reporting indicates that Iran eventually hopes to field an armored force of some 5,000 modern tanks.

The launch of the Zulfiqar program remains an important milestone in Iran's long-term efforts to build a self-sufficient domestic defense industry and to modernize its military vehicle inventories with larger quantities of indigenous designs.

While the Zulfiqar is Iran's most prominent and most unique indigenous MBT design, Iranian contractors have also initiated a number of other domestic tank programs. These efforts are focused largely on upgrading and modifying existing foreign designs with indigenously developed ordnance, powerplants, and other technical systems.

Such models include the Samsam MBT, an up-armored adaptation of the M60A1 model currently operated in

considerable numbers by the Iranian Army; the Tosan light tank, based on the FV101 Scorpion; and the Sabalan MBT, which derives its design from the M47M Patton.

Although the combat capabilities of these tanks are outmoded compared to modern American and European MBT designs, the arduous process of guiding indigenous armored vehicle programs from a mere developmental concept through to serial production provides Iranian defense contractors with valuable experience.

#### *Ongoing Development*

Although the Zulfiqar MBT is in full-rate production, press reports and photographic evidence suggest that the prime contractor is engaged in an ongoing process of modifying and upgrading the vehicle's core technical specifications.

The prime contractor has developed three sequentially numbered variants of the Zulfiqar. Each version

**Zulfiqar Archived FEB**

integrates fire control systems and incorporates an array of armored protection and performance features.

This tandem process of production and modernization contributes to the scarcity of technical information on

the program. Iran's existing Zulfiqar will be standardized gradually, with the latest variant, the Zulfiqar III, likely serving as the model for the system's standardization.

**Ten-Year Outlook**

<b>ESTIMATED CALENDAR YEAR UNIT PRODUCTION</b>												
<b>Designation or Program</b>		<b>High Confidence</b>				<b>Good Confidence</b>			<b>Speculative</b>			
	<b>Thru 2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>	<b>2032</b>	<b>2033</b>	<b>Total</b>
<b>Iran Defense Industries Organization (DIO)</b>												
<b>Zulfiqar &lt;&gt; Iran</b>												
	705	25	25	25	25	25	17	25	25	25	25	242
<b>Total</b>	705	25	25	25	25	25	17	25	25	25	25	242