

ARCHIVED REPORT

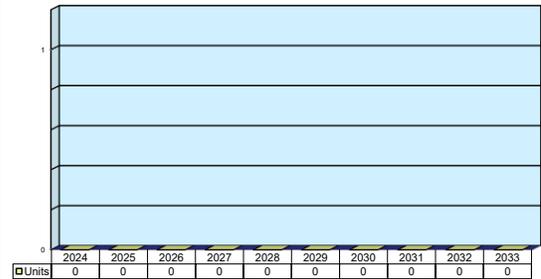
For data and forecasts on current programs please visit forecastinternational.com or call +1 203.426.0800

Fennek

Outlook

- KMW completed serial production for Dutch and German procurement in 2011
- Current focus is on retrofit of existing vehicles to the Joint Fire Support Team (JFST) configuration
- Barring a change in the market this report will be archived in 2025

Unit Production Forecast
2024-2033



Orientation

Description. A wheeled armored reconnaissance vehicle.

Sponsor. Since December 1994, the ministries of defense of the Netherlands and Germany have sponsored the Fennek program, which was previously a private venture of the now-defunct ARGE consortium.

Status. Development through serial production.

Total Produced. Through 2022, we estimate the contractor team produced 690 Fennek vehicles.

Application. A light armed scout/reconnaissance vehicle designed to replace the Dutch M113 command and reconnaissance vehicle and to address the German Zobel requirement for a similar vehicle.

Price Range. The Fennek reportedly maintains a unit price of \$4.235 million in 2024 U.S. dollars.

Contractors

Prime

KNDS Deutschland GmbH & Co KG	http://www.kmweg.com , Krauss-Maffei-Strasse 11, Munich, Germany, Tel: + 49 89 8140 50, Fax: + 49 89 8140 4900, Email: info@kmweg.de , Prime
FNSS Savunma Sistemleri AS	http://www.fnss.com.tr , 37 Golbasi, Ankara, Turkey, Tel: + 90 312 497 43 00, Fax: + 90 312 497 43 01, Email: info@fnss.com.tr , Licensee

Subcontractor

Atlas Elektronik GmbH	http://www.atlas-elektronik.com , Sebaldsbrücker Heerstrasse 235, Bremen, Germany, Tel: + 49 421 457 02, Fax: + 49 421 457 3699, Email: info@atlas-elektronik.com (Electro-Optic Sensor Suite)
Deutz AG	http://www.deutz.com , Ottostrasse 1, Koln-Porz (Eil), Germany, Tel: + 49 221 822 0, Fax: + 49 221 822 5850, Email: info@deutz.com (BF6M 2013C Diesel Engine)

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

Fennek

Technical Data

Crew. Three: commander, driver, and sensor operator.

Configuration. 4x4.

Armor. All-welded aluminum armor with additional armor at strategic locations. The armor suite provides

protection against 7.62mm armor-piercing projectiles and ballistic fragments. The armor suite is modular in design, allowing for rapid adaptation to mission requirements.

Dimensions. The following data reflect the Dutch production-standard Fennek; German specifications are in parentheses where different. Fuel capacity is estimated.

	<u>SI Units</u>	<u>U.S. Units</u>
Length	5.58 m	18.31 ft
Width	2.55 m	8.37 ft
Height	2.29 m	7.51 ft
Combat weight	10.40 (10.25) tonnes	11.46 (11.29) tons
Fuel capacity	214 liters	56.91 gal

Performance. The speed and range data reflect use on a paved road.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	115 kmph	71.42 mph
Maximum range	986 km	612.30 stat mi
Step	30 cm	11.81 in
Trench	80 cm	2.63 ft
Slope	35%	35%
Gradient	62%	62%
Fording	1 m	3.28 ft

Engine. Deutz BF6M 2013C six-cylinder, supercharged, liquid-cooled diesel engine. This powerplant generates 178.97 kilowatts (240 hp). In the Dutch Fennek, the powerplant provides a power-to-weight ratio of 17.21 kW/tonne (20.94 hp/ton); in the German Fennek, the power-to-weight ratio is 17.46 kW/tonne (21.26 hp/ton). The 24-volt electrical system features four 24-volt/120-amp-hour batteries.

Gearbox. Unspecified automatic unit with one reverse and six forward gears.

Suspension and Running Gear. Independently sprung coil spring suspension, with hydropneumatic shock dampers at each wheel station. The vehicle mounts run-flat tires.

Armament. One 40mm automatic grenade launcher with various coaxially mounted 7.62x51mm NATO (.308 Winchester) machine guns or a 12.7x99mm (.50-cal) M2HB heavy machine gun.

Variants/Upgrades

Variants. Not applicable at this time. However, the contractors produced the following variants under the original multipurpose carrier vehicle concept (which evolved into the Fennek):

Designation	Description
Fennek	Basic 4x4 armored reconnaissance vehicle. See Technical Data , above.
Dutch Variants	A total of 202 of the 410 Dutch vehicles are basic reconnaissance variants with the M2HB machine gun. Another 78 are general-purpose vehicles with the same armament. The remaining 130 vehicles are tank destroyers mounting the Rafael Gill anti-tank guided missile system.

Fennek

Designation	Description
German Variants	A total of 178 of the 248 German vehicles are basic reconnaissance variants with the M2HB machine gun. Another 24 vehicles are Pioneer variants mounting an unspecified 40mm automatic grenade launcher. There are also 19 specialized versions ordered for use in joint fire support role (these came in two variants, one used for forward observer/ground artillery fire and the second for forward air control). Remainder are second-hand Dutch variants purchased in 2017-18 and upgraded to joint fire support role.

Modernization and Retrofit Overview. Not applicable at this time.



Fennek Reconnaissance Vehicle

Source: Krauss-Maffei Wegmann GmbH & Co KG

Program Review

Background. In 1988, the Special Products Division of the Dutch DAF firm began development of a modern light wheeled vehicle in response to a Netherlands Army requirement for a new vehicle to replace its M113 command and reconnaissance vehicle and some Land Rover vehicles used in the scout/reconnaissance mission. In addition, DAF officials believed that the new vehicle could address a Netherlands Army requirement for an armored personnel carrier.

To meet such a diverse set of applications, DAF designers strove to develop a light yet powerful modular armored vehicle for the widest range of customers.

Dutch-German Collaboration

By mid-1992, the contractor had developed a mockup of its multipurpose carrier vehicle. Although the armored personnel carrier portion of the program subsequently fell by the wayside, the scout/reconnaissance vehicle requirement remained intact.

At about the same time, the German Bundeswehr initiated a requirement for a new light scout / reconnaissance vehicle under the Zobel program. In

1993, the Dutch and Germans merged the two requirements into a single program. Following competitive evaluations, Germany and the Netherlands selected the DAF Special Products proposal in September 1994. In December of that year, DAF secured a contract for the first four vehicles (two each to the Netherlands and Germany).

A January 2002 production contract indicated that Germany ultimately ordered 202 vehicles and the Netherlands, 410.

Corporate Shuffle

In a corporate reorganization, DAF Special Products was renamed Special Products Aerospace & Vehicle Systems. For the Fennek marketing and production effort, Special Products Aerospace & Vehicle Systems and Krauss-Maffei Wegmann GmbH formed the ARGE consortium. In 1998, RDM Technology acquired a controlling interest in SP Aerospace & Vehicle Systems.

In July 2004, Krauss-Maffei Wegmann took legal action to end its ARGE consortium arrangement with SP Aerospace & Vehicle Systems, citing production

Fennek

delays and the Dutch partner's financial position. In August 2004, SP Aerospace & Vehicle Systems went bankrupt. In October 2004, KMW formed Dutch Defense Vehicle Systems (DDVS) to continue the Dutch end of the Fennek program.

Terminology. The Dutch originally referred to the vehicle by the acronym LBV; the Germans designated it the Spähwagen Leicht 4x4, informally known as the Fennek. More recently, both nations have more or less officially adopted the Fennek designation.

Description. The vehicle exhibits a somewhat unusual interior layout for a light wheeled vehicle. The driver sits in the center-front of the hull. The driver's station features three large bulletproof windscreens. The station can mount an infrared or passive night vision device. The commander's and equipment operator's positions are behind the driver. The engine and gearbox mount in the rear of the vehicle.

Emphasis on Electronics

The extensive electronics suite by Atlas Elektronik is the reason for the high unit price of the Fennek. The retractable 1.5-meter (4.92-ft) mast mounts the sensor suite. Other onboard systems include:

- A thermal imaging device
- A television camera
- A laser rangefinder
- A hybrid GPS and inertial navigation system
- Radio communications equipment
- A control and display unit
- Data relay equipment

The equipment operator can move the masthead in elevation and azimuth from within the vehicle. The

Funding

The contractors provided the initial funding for the multipurpose carrier vehicle and the Fennek light armed reconnaissance vehicle. Since December 1994, the Dutch and German ministries of defense have funded the program.

Contracts/Orders & Options

The following information reflects the Fennek production contracts for combined Dutch and German requirements. Amounts are in equivalent U.S. dollars.

operator can also deploy the sensor components remotely up to 40 meters (43.74 yd) from the vehicle.

Standard equipment also includes fire detection / extinguishing equipment, powered ventilation, and power steering. Available options include additional night vision equipment; additional radios; a nuclear, biological, and chemical (NBC) protective suite; air conditioning equipment; and smoke grenade launchers.

The contractors have also proposed an amphibious variant of the Fennek featuring two waterjets at the rear of the vehicle for water propulsion.

Internal & External Troubles

In 1996, the joint Dutch-German trials of the first prototype Fennek vehicles revealed several problems related to the level of armor protection and automotive performance, including braking. Subsequently, the contractors retrofitted a new engine and a modified gearbox and improved the suspension components in order to address the deficiencies.

By early 2000, cuts in the German defense budget had led to a postponement of the initial Bundeswehr procurement order. This action caused the unit price of the Dutch vehicle to increase. After the Dutch and German participants developed a series of revised procurement plans and options, they finally signed the Fennek production contract on January 2, 2002. Serial production began later that year.

By July 2004, continued production delays and the teetering financial position of S&P Aerospace & Vehicle Systems under RDM Technology prompted the dissolution of the ARGE consortium. Krauss-Maffei Wegmann now acts as the prime contractor for the Fennek program, with the newly formed DDVS handling production in the Netherlands under the auspices of KMW.

Fennek

Date	Amount	Description
2002/01	\$445 million	612 vehicles: 202 for Germany and 410 for the Netherlands.
2007/11	\$46.1 million	10 Fennek vehicles for Bundeswehr JFSTs; four Dingo 2 vehicles for the Czech Republic.
2009/09	\$48.4 million	10 additional Fennek vehicles for Bundeswehr JFSTs.
2015-16	—	32 Fennek vehicles sold to Qatar Land Forces in basic reconnaissance variant.
2017/07	\$101.4 million	Retrofit of 30 Fennek vehicles to the JFST configuration.

Worldwide Distribution/Inventories

Export Potential. Although Fennek production has thus far been for Dutch and German requirements only, several other nations have expressed interest. In June 2004, FNSS of Turkey secured a licensed-production agreement for the Fennek. This vehicle – or later variants – could potentially score at least some export sales, but with 20 years having gone by and nary an order that appears unlikely. Additionally, the high-end unit price will severely limit the Fennek's impact on the international light wheeled vehicle market. The lone export sale of the Fennek involved 32 units destined for the Qatari Emiri Land Forces in 2015-16, which emanated from Germany and not Turkey.

Countries. Germany (248); the Netherlands (410); Qatar (32).

Forecast Rationale

The Fennek production line remains dormant following completion of serial production in 2011 for Dutch and German procurement.

Additional Bundeswehr orders would cause a restart of the Fennek line. However, the Bundeswehr appears to be focused on newer systems moving forward. In the meantime, the best near-term prospects for the Fennek involve the ongoing retrofit of existing vehicles to the Joint Fire Support Team (JFST) configuration and the potential for Turkish licensed production.

In June 2004, FNSS Savunma Sistemleri AS of Turkey secured a licensed-production agreement from KMW

for the Fennek. FNSS intended to offer the Fennek for the Turkish Land Forces Command's 120-vehicle requirement under the Tactical Wheeled Armored Reconnaissance Vehicle (TWARV) program. To date, however, FNSS has not yet placed the Fennek into production under the licensing agreement with KMW.

Without an export order secured in the past decade and nothing looming on the horizon the likelihood is that any funding towards Fennek will involve upgrades and modernizations. The Netherlands gifted an undisclosed number of its Fennek vehicles to Ukraine in 2023. Otherwise the market for this particular vehicle is nil.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Krauss-Maffei Wegmann GmbH & Co KG (KMW)												
Fennek	690	0	0	0	0	0	0	0	0	0	0	0
Total	690	0	0	0	0	0	0	0	0	0	0	0