

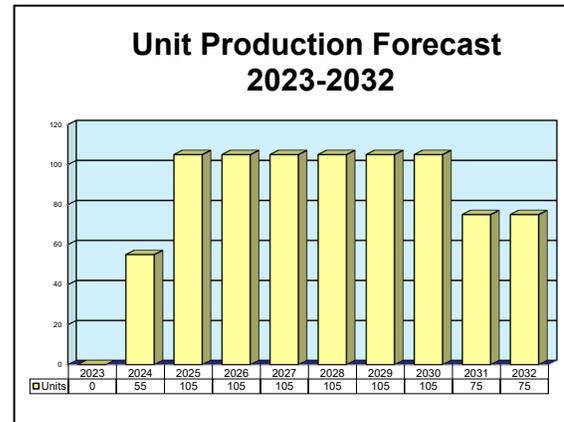
ARCHIVED REPORT

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FT5

Outlook

- Serial production occurs on an as-needed basis for SANDF procurement and sporadic regional export sales
- No modernization or retrofit potential beyond possible introduction of improved munitions
- Production outlook reflects sales prospects for FT5 launchers; forecast does *not* include ammunition



Orientation

Description. A man-portable anti-armor weapon.

Sponsor. The South African National Defence Force (SANDF) sponsors the development and SANDF procurement of the FT5.

Licensees. None.

Status. Development through as-needed serial production.

Total Produced. Through 2022, we estimate the contractor produced 2,766 FT5 launchers.

Application. A man-portable, short-range, anti-armor weapon optimized for use by infantrymen on the move.

Price Range. In 2023 U.S. dollars, the FT5 launcher maintains a unit price of \$5,265. The baseline High Explosive Anti-Tank (HEAT) munition costs approximately \$177 per round.

Contractors

Prime

Denel SOC Ltd	http://www.denel.co.za , Nellmapius Dr, Irene, South Africa, Tel: + 27 12 671 2700, Fax: + 27 12 671 2751, Email: marketing@denel.co.za , Prime
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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

FT5**Technical Data**

Dimensions. The following data reflect the current production standard with the baseline HEAT munition.

	<u>SI Units</u>	<u>U.S. Units</u>
Projectile length	78.0 cm	30.7 in
Total length	1.62 m	5.31 ft
Projectile diameter	99.0 mm	3.89 in
Total diameter	11.7 cm	4.61 in
Projectile weight	5.4 kg	11.88 lb
Total weight	11.3 kg	24.86 lb

Performance. The contractor claims the FT5 is capable of destroying T-62 threat-level tanks. Planned upgrades will enable the weapon to engage heavier armor threats. The armor perforation data reflect application of our standardized formula to the baseline FT5 HEAT projectile.

	<u>SI Units</u>	<u>U.S. Units</u>
Speed	275 mps	902.22 fps
Altitude	Line of sight	Line of sight
Maximum range	600 m	656.2 yd
Normal operating range	40-400 m	43.74-437.44 yd
Dispersion	<0.75 mil	<0.75 mil
Armor perforation	57.96 cm	22.82 in

Propulsion. An unspecified solid-fuel rocket motor of unknown composition and performance. This motor burns out in 12 milliseconds.

Launcher Mode. The shoulder-launched FT5 munition fires from a disposable launch canister attached to a reusable launcher tube.

Control & Guidance. After the projectile exits the launch canister, nine spring-loaded fins deploy, providing aerodynamic stabilization in flight.

Warhead. The FT5 launcher can fire a variety of 99mm rocket-powered munitions. A crush fuze assures detonation at high angles of incidence. Available warhead types include:

- High Explosive Anti-Tank (HEAT)
- High Explosive Multi-Purpose (HEMP)
- High Explosive Anti-Tank/Reactive Armor (HEAT/RA), optimized to engage explosive reactive armor

Variants/Upgrades

Variants. While we do not expect the contractor to develop any specific variants of the FT5 per se, Denel/Somchem has developed an alternate application for the FT5 launcher.

ATR-5 Remote System

An off-route mine system, the ATR-5 integrates a tripod-mounted FT5 with a fire control module. This component features acoustic and infrared sensors to detect and identify the target; the module then calculates the target speed and distance. The fire control component can accept preset target parameters, enabling the ATR-5 to engage targets with various speeds, distances, or directions.

One person can carry and emplace the 17-kilogram (37.4-lb) system. The ATR-5 features an anti-tamper mechanism; the weapon self-destructs after 90 days of emplacement.

Available information indicates that the ATR-5 has yet to enter serial production.

Modernization and Retrofit Overview. Not generally applicable. The contractor integrates any improvements as production cut-ins. We expect that the contractor will eventually enhance the performance of the entire FT5 system with new projectiles, fuzes, and warheads.

Program Review

Background. In the late 1970s, the (then) South African Defence Force (SADF) identified a requirement for a modern man-portable anti-tank weapon with better anti-armor performance than the hundreds of captured Russian RPG-7 launchers and several thousand rocket-propelled grenades on hand.

Alternative to RPG-7

The SADF found the anti-armor performance of the RPG-7 was suspect against tanks later than the T-55 generation. As the unique geopolitical position of South Africa precluded large-scale purchases on the international market, the SADF sought the indigenous development of a suitable weapon system. The development of the FT5 began in 1983. Deliveries began in May 1989.

Corporate Evolution

The FT5 development and procurement program originally proceeded under the auspices of the ARMSCOR organization. With the reorganization of the South African defense industry in the early 1990s, Somchem assumed control of the FT5 program. Somchem now operates as a component of the Denel Group.

Description. Unlike many other weapons of this type, the FT5 launcher is not disposable after use.

Reusable Launcher

In addition to reducing the overall program cost, the reusable launcher allows the integration of a better sighting system, as well as better safety and firing systems. The launcher is a filament-wound cylinder, which mounts the following components:

- A padded shoulder rest
- An optical sight
- The safety and firing mechanisms
- Two handgrips, with a bipod stored inside the front handgrip

A wear-resistant liner fits inside the launcher's cylinder. In operational tests, the launcher did not exhibit any significant wear after well over 230 firings.

The four-power sight features a graticule for range and target lead estimation. When not in use, the sight stores in the rear of the launcher. The launcher also mounts a

simple battle sight for emergency use. The FT5 launcher can also mount a passive night sight.

FT5 Ammunition

Perhaps the greatest advantage of the reusable launcher design of the FT5 is the almost unlimited potential for varieties of ammunition and warheads to meet new threats and applications.

Each individual round of 99mm ammunition consists of the complete munition (warhead and propellant) in a disposable launch canister. The rocket munition in the canister reportedly has a shelf life of at least 10 years. The operator attaches the canister to the rear of the FT5 launcher, forming a complete weapon. The contractor designed the basic HEAT warhead to defeat the T-62 tank. In addition to the HEAT, HEMP, and tandem HEAT/RA warheads, we believe that the contractor may offer illumination, smoke, and other warheads in the future.

Sequence of Operation

One infantryman carries the FT5 launcher; another infantryman carries a backpack with two munition canisters. If the operator must fire from the prone position, he deploys the bipod from the front handgrip. After attaching the munition canister to the rear of the launcher, the operator acquires the target through the sights and fires the weapon via the electronic thumb-activated trigger-firing mechanism. Because the rocket motor burns out before the munition exits the launch canister, the operator requires no special protective gear.

Immediately following the activation of the rocket motor, arming of the warhead proceeds in stages; final arming occurs about 30 meters (32.81 yd) downrange. The FT5 is effective between 40 and 400 meters (43.7 and 437.4 yd); the maximum practical range is around 600 meters (656.2 yd).

Subcaliber Training Device

The contractor has also developed a subcaliber training package for the FT5. The subcaliber device fires a 7.62x51mm NATO (.308 Winchester) round, which features an adjusted velocity to approximate the ballistic performance of the standard FT5 rocket munition. The subcaliber training package also includes a sound and gas generator for more realistic effects, as well as an indoor training range.

FT5*Coping with ERA*

To counter the growing availability of explosive reactive armor (ERA), Somchem developed the tandem HEAT/RA warhead for the FT5. The new tandem-type

warhead has demonstrated its effectiveness by perforating more than 63 centimeters (24.8 in) of standard armor protected by a layer of explosive reactive armor.

Funding

The South African Department of Defence funds the development, and SANDF the procurement, of the FT5.

Worldwide Distribution/Inventories

Export Potential. With the 1994 lifting of U.N. sanctions, South African contractors have been able to re-establish themselves as legitimate players on the international market. However, the FT5 faces stiff competition in a highly competitive market, severely limiting its export potential. Unconfirmed reports of initial FT5 exports suggest that other African nations have been the only export customers thus far.

Countries. In addition to the **Republic of South Africa**, two unidentified (probably African) nations have reportedly procured the FT5 in small numbers.

Forecast Rationale

The South African National Defence Force (SANDF) remains the primary customer for the FT5 anti-armor weapon.

Limited Export Potential

Although the contractor originally developed the FT5 specifically for South African requirements, Denel also offers the weapon on the international market. However, between the lingering political stigma of South Africa's history and a highly competitive market, the FT5 has yet to make a significant mark in terms of export sales.

What's In a Name?

In September 2008, Rheinmetall Defence completed its acquisition of a majority stake in South Africa's Denel

Munitions. Rheinmetall Defence acquired a 51 percent stake in Denel Munitions; the remaining 49 percent stayed with Denel. The company now operates as Denel SOC Ltd. However, what effect, if any, the Rheinmetall brand is having on Denel munitions sales remains unclear.

Launcher vs. Ammunition Sales

Regardless of the weapon system's market limitations, the Forecast International Weapons Group expects the FT5 to garner at least a few regional export sales.

As the FT5 system employs a reusable launcher, production of new launchers will pale in comparison to the production of ammunition. The contractor may be able to generate new sales through the introduction of enhanced munitions for existing launchers.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
Denel SOC Ltd												
FT5												
	2,766	0	55	105	105	105	105	105	105	75	75	835
Total	2,766	0	55	105	105	105	105	105	105	75	75	835