



155 mm SELF-PROPELLED GUN-HOWITZER



- LONG FIRING RANGE
- ULTRA-QUICK REACTION
- EXCEPTIONAL MOBILITY
- HIGH ACCURACY

INTRODUCTION

The G6 is a proven, highly mobile and accurate 155mm long-range gun. The high-speed, wheeled chassis provides excellent strategic mobility over long ranges.

The G6 system has been developed for modern warfare. Its on-board equipment and supplies provide a high degree of operational autonomy and ultra-quick reaction time.

The gun is mounted on an armoured chassis driven by six wheels and is capable of a road speed in excess of 85 km/h, making it ideally suited to supporting the movement, deployment and action of mechanised infantry and armoured divisions. No transporters are required for strategic movement over long ranges.

The G6 is unsurpassed in the modern warfare concept, where the artillery carries out strike missions as a separate combat arm, without involving other forces.

The projectiles are of the extended range full bore (ERFB) type and provide increased range and terminal effectiveness compared to other 155 mm systems. Using base-bleed projectiles, the G6 has a nominal range of 39 km at sea level. Accuracy is exceptional. At 75% of maximum range, the probable error specification is only 0,48% of range and 1 mil in deflection.

A complete logistics system has been established. This makes provision for the training of user and technical personnel, as well as for documentation, spares and equipment for the operation, maintenance, repair and overhaul of the G6.

The high strength armourplate hull protects the six-man crew against small arms fire and shell splinters and allows the G6 to break its way through dense bush.

Its high mobility and exceptional ballistics, together with the comprehensive subsystems make the G6 one of the finest 155 mm artillery weapons available today.

WEAPON SYSTEM

Main Weapon

- 155 mm, 45 calibre autofrettaged barrel.
- Semi-automatic screw type breech.
- Electrical trigger mechanism for additional safety.

Ammunition Storage and Handling

- On-board storage for 45 projectiles and 50 charges together with fuzes and primers.
- Blow-off doors on rear charge storage bins for additional safety in case of accidental ignition.
- Semi-automatic projectile loading by means of an electronically controlled hydraulic flick-rammer.
- Quick projectile loading at all elevation angles.
- Two loading chutes in rear of gun for direct loading from a ground pile.

Laying and Navigation

- Ring laser gyro laying and navigation system with touch-screen control.
- Fully autonomous laying and navigation capability with no need for survey and alignment at the gun position.
- Optional integration with a GPS satellite navigation system.
- Redundancy in the form of a back-up laying system.
- Trunnion mounted telescopic sight for direct firing up to 3000 metres.



Reaction Time

- The autonomous laying system enables the gun to fire the first round within 1 minute after stopping the vehicle.
- The out-of-action time is 30 seconds.

Protection

- Eight smoke launchers which fire 81 mm smoke grenades for the generation of a smoke screen.
- All around counter bombardment fragment and 7,62 AP protection.
- Protection against 20 mm gunfire from the front.
- Firing ports for crews' personal weapons.
- Machine-gun mounting on left turret cupola with optional machine-gun.
- Filters for biological and chemical protection.
- Automatic fire-extinguishing system.
- Escape hatch through turret compartment floor.
- Crew protected against TM46 landmine or equivalent.

Crew Comfort

- Turret air-conditioning system.
- Wheeled chassis with comfortable ride.
- Sufficient space in turret compartment.
- Comfortable seats with safety belts.

Hot Climate Options

- Up-rated air conditioning system (Up to 50 °C ambient).
- Driver compartment air-conditioning.
- Barrel cooling.
- Barrel and recoil temperature indicator.

Power Pack and Driveline

- Engine and gearbox mounted on a subframe in the front of the vehicle.
- Air-cooled diesel engine with 386 kW power output.
- Six speed automatic gearbox.
- Permanent six-wheel drive with differential locks.
- Fully independent torsion bar suspension.

Wheels and Brakes

- Run-flat inserts enable the G6 to remain mobile with a ruptured tyre.
- Central tyre inflation system with settings for soft, medium or hard terrain. Tyre pressure can be adjusted on the move.
- Hydro-pneumatic drum brakes on all wheels.
- Crawl brake, transmission retarder, exhaust and parking brakes.

Autonomy

- 700 km cruising range on one full tank.
- On-board ammunition.
- Inertial laying and navigation system requires no external references.
- On-board drinking water supply.
- On-board gun equipment.
- Gun management system capable of ballistic calculations.

ADVANTAGES OF WHEELS OVER TRACKS

- Increased service life.
- Simplicity of design.
- Reduced fuel and maintenance costs.
- Exceptional strategic mobility.
- Reduced noise levels.
- Improved ride characteristics.
- Reduced logistics support requirements.
- Longer range without refuelling.
- Reduced susceptibility to land mines.
- No requirement for heavy transporters.



G6 WITH AMMUNITION



FIRE-CONTROL VEHICLE



SYSTEMS APPROACH

The G6 with its integrated Logistics Support was developed in the context of the integrated artillery system fielded by the DENEL Group.

As a result, the G6 can either be offered alone or, more usually, as part of a complete package, depending on the particular needs of the client.

Ammunition

A comprehensive and flexible ammunition system was developed together with the gun. This includes:

- Extended range full-bore projectiles of explosive, cargo and practice types; all ballistically matched and with field-fittable base bleed units.
- A five-zone combustible case modular propelling charge system, based on cool-burning propellants which ensure a long barrel life of more than 6000 standard charges.
- Compatible fuzes of direct action, electronic time or proximity types, all suitable for full charge and maximum range application.

Related Equipment

- Command & Fire Control systems.
- Meteorological systems.
- Observation systems.
- Communication systems (for both voice and data).
- Logistics support vehicles.
- Ammunition vehicles.

Integrated Logistics Support (ILS)

A complete integrated logistics support package is available. This is normally tailored to a specific environment and application, taking into account the capabilities of the user's existing support infrastructure. The package could include:

- Equipment and accessories carried with the gun or at higher echelons.
- Operating, maintenance and workshop repair manuals; and illustrated parts catalogues.
- Spare parts and assemblies, tools and equipment to support everything from first-line to base-workshop repair and maintenance including complete overhauls and rebuilds.
- Operational and technical training at all levels.
- Field support.

TYPICAL TECHNICAL DATA

Main Weapon

Calibre	155 mm
Barrel length	45 calibres
Breech	Semi-automatic (screw type)
Muzzle brake	Single baffle, open type
Fume extractor	Reinforced epoxy resin
Ammunition compatibility	All NATO 155mm

Weapon Performance

Rate of fire (maximum)	3 rounds/minute
Range (sea level)	
• standard	30 km
• base-bleed	39 km
• velocity enhanced long range projectile (VLAP)	50 km
• direct fire	0-3 km
Into-action time	60 seconds
Out-of-action time	30 seconds
On-board ammunition	45 projectiles, 50 charges

Gun Control Equipment

Type	Electrohydraulic with hydropneumatic equilibrators Manual hydraulic back-up
Elevation range	-5° to +75°
Firing arc	80°

Vehicle Performance

Maximum speed	
• roads	85 km/h
• cross-country and sand	30 km/h
Maximum gradient	40%
Maximum trench crossing	1,0 m
Maximum fording depth	1,0 m
Turning circle	27 m
Fuel tank capacity	700 litres
Fuel range (on road)	700 km

Physical Characteristics

Mass	47 tonnes
Length	10,4 m
Width	3,4m
Height	3,5 m
Ground clearance	0,45 m
Track width	2,8 m

Power Pack & Driveline

Engine (air-cooled diesel)	386 kW
Gearbox (auto/manual)	6 speed with torque converter
Driveline	Propshafts & differentials Longitudinal and transverse differential locks
Suspension	Independent torsion bars with shock absorbers and hydropneumatic bumpstops

Wheels & Brakes

Tyres	21,00 x 25 fitted with run-flat elements and central tyre inflation system
Brakes	Power-assisted with drums on all wheels Also crawl brake, retarder, exhaust brake and parking brake

Secondary Weapons

- Machine gun
- Eight 81 mm smoke grenade launchers
- Firing ports for personal weapons





THE MOST ADVANCED ARTILLERY SYSTEM AVAILABLE



The G6-52 gun howitzer engineered
in South Africa represents a
quantum leap in the technology of
modern artillery systems.

>>>
the future



G6-52 GUN HOWITZER

While the renowned 155mm G6 self-propelled gun howitzer continues to outgun competitive artillery systems, the new G6-52 has, after 10 years of development in South Africa, re-set the leading edge in armament development, with advances in all the capabilities critical to effective artillery.



UPGRADES

The G6-52 is a development of the proven G6-45 system.

The highly mobile G6 gun howitzer has been upgraded with:

- increased range to 50km with basebleed ammunition and 67km for VLAP projectiles, outperforming competitive equipment by more than 50%;
- an increased rate of fire to 8 rounds per minute with all compatible charges;
- superior mobility; and
- a reduced manpower requirement.



OTHER ADVANCES

T6-52

The G6-52 turret (designated T6-52) has charge and projectile magazines located in the turret bustle, containing 40 complete rounds. A turret power unit using a diesel engine is located centrally between the projectile and charge magazine. The turret is, therefore, fully autonomous and can be integrated with any suitable chassis.



TWO BALLISTIC OPTIONS

The G6-52 ballistic system was upgraded to achieve a maximum range of 50 km with the improved Denel M9 range of High Explosive and Carrier ERFB projectiles and Base Bleed units, and the modular M64 charge series. The M9 V-LAP projectile was designed to be compatible with this system and has a maximum range of 67 km.

A 23 litre chamber version with a maximum range of 42 km using the Denel M1 or Assegai projectile series is available for users who require Joint Ballistic Memorandum of Understanding (JBMOU) compatibility. For this option, the M90 Bi-modular charge system is used, although the M64 Bi-modular charge system can also be used.

DISPERSION

Dispersion of 50% Zone (2PE): -0,5 % of range, -1 mil in line at 75 % of maximum range in the lower trajectory.

ACCURACY

0.6 % CEP of range (In lower trajectory).

COMMAND AND CONTROL

The upgraded version of the AS2000 Artillery Target Engagement System is fully integrated with the G6-52. The AS2000 system now has an improved Icon- and Windows based graphical user interface and makes provision for multiple rounds simultaneous impact (MRSI) fire missions. The Fire Control interface in the gun allows on-board ballistic computation if required.

UPGRADEABILITY

Current G6-45 calibre systems can be upgraded to the new standard.



• SPECIFICATIONS

BALLISTIC SYSTEMS:

	JBMOU	EXTENDED RANGE
Barrel length	52 calibre	52 calibre
Chamber volume	23 litre	25 litre
Charge system	M90	M64
Range ERFB	33 km	38,4 km
Range ERFB Base Bleed	42 km	50 km
Range V-LAP	58 km	67 km
Ammunition compatibility	All 155 mm	All 155 mm
MRSI: Multiple rounds simultaneous impact	5 rds at 25 km	6 rds at 25 km

AMMUNITION HANDLING:

Intense rate of fire	8 rds/min for 40 rounds with all charges	
Ammunition loading	Fully automatic with manual back-up mode	
Crew required	3 - 5 men	
On-board ammunition	G6-52: 40 in turret 8 in vehicle	T6-52: 40 in turret Up to 6 depending on the vehicle
Ammunition re-loading	Semi-automatic from ground pile or Ammunition Re-supply Vehicle	
Ammunition re-loading time	10 minutes for 40 complete rounds	

LAYING AND NAVIGATION:

Laying and Navigation system	Ring Laser Gyro inertial with GPS as secondary navigation aid Fully automatic laying with accuracy better than 1 mil RMS	
In-action time (stop to round 1)	G6-52: 45 sec	T6-52: 30 sec
Out-of-action time	G6-52: 30 sec	T6-52: 30 sec

GUN CONTROL:

Traverse	G6: 80°	T6: 360°
Elevation	-5° to +75°	-5° to +75°

MOBILITY:

G6-52	Max. speed 80 km/h
Off-road speed	Up to 70 km/h
Fuel range	Up to 700 km
Combat mass	49 000 kg
Driveline and Wheels	Permanent 6x6 Automatic tyre inflation system Run-flat inserts
Suspension	Fully independent swing arm with torsion bars
T6-52 mobility	As per chosen SP chassis
T6-52 combat mass	18 000 kg (Turret only)

PROTECTION:

Armour: Standard	7,62 mm NATO AP all round fired at 30 m range Frontal protection against 14,5 mm AP fired from 1000 m range at an approach angle of 30 degrees to the armour plate. TM 46 landmine or equivalent under any wheel.
Landmine	
NBC Protection	G6-52: Integrated in vehicle T6-52: Optional