

# TURRETS FOR ATTACK HELICOPTERS



DENEL MECHATRONICS

Denel Mechatronics  
12 Barnsley Road Benoni, 1500, South Africa  
Telephone +27 11 747 3300, Fax +27 11 749 8298  
Email: [mechatronics@lssa.co.za](mailto:mechatronics@lssa.co.za)  
[www.denel.co.za](http://www.denel.co.za)



DENEL VEHICLE SYSTEMS



Denel Mechatronics' turrets have been successfully integrated onto various helicopter platforms, including the Rooivalk and Mi-24 Hind attack helicopters.

#### Range of turret solutions

- Hydraulic or Electric Drives
- Turrets for a defensive role on light utility and transport helicopters
- Turrets for an offensive role on attack helicopters
- The above options may cover a variety of turreted cannons, with this specific product utilising the 20 x 139mm cannon

#### Operational Capabilities

- Nose mounted gun turret with freedom of movement in azimuth and elevation
- The system can be slaved from on-board equipment such as a main sight, as well as a helmet pointing system
- Optional dual feed system depending on the type of cannon

#### Turret control unit

The turret control unit (Ballistic computer) or TCU is a line replaceable unit interfacing between the pilot and Weapon Systems Officer's helmet sight, aircraft sensory and avionics system, the Control Panel and the turret. The TCU implements amongst others the following turret subsystem operations:

- Turret position and rate control loops
- Fire control corrections
- Control of firing safety interlocks
- Control of weapon safety functions, firing and stowing
- Ammunition management
- Turret subsystem built in test

#### Typical Characteristics

Cannon	GIAT F2 or G12 firing 20x139 mm rounds
Cannon effective Range	2000 m (15 mm armour penetration)
Firing Rate	720 rounds per minute
Power	Hydraulically powered: 27 l/min @ 15 MPa Peak 17 l/min @ 17 MPa Continuous
Turret accuracy	< 1.5 mrad 3σ pointing accuracy < 3 mrad 3σ slow tracking accuracy
Operating Envelope	-110 to +110 deg in Azimuth -55 to +15 deg in Elevation
Maximum Slew Rate	110 deg/s in Azimuth 75 deg/s in Elevation
Maximum Acceleration	1 000 deg/s <sup>2</sup>
Reaction Time	1.8 sec from selection of cannon, to firing at 60 deg traverse, -45 deg elevation
Dimensions	875mm high x 900mm long (excluding cannon) x 600mm wide
Mass	175 kg, excluding ammunition, but including TCU, cannon of 76kg
Turnaround time	Reloading cannon: 4 min using 2 persons Reload ammunition: 10 min
Environmental specifications	Fully qualified to MIL-STD-810E

#### Disclaimer

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