

from Bodine Electric Company

■ Planetary Gearmotors Deliver Precise Motion



Satellite Dish / Mobile Broadcast Equipment

24 VDC gearmotors provides precise positioning

A manufacturer of mobile antenna systems required two gearmotors to position the antenna to connect to orbiting telecommunications satellites. The gearmotors deliver precise motion during the initial calibration with the satellite, and then remain idle until the antenna is moved to a new location. These mobile antennae are often used in remote locations to broadcast news or sports events, or for emergency and military communications, therefore the gearmotors needed to be able to operate in harsh outdoors environments and run from a 24 VDC power source.

Our design team recommended a 24A-60P planetary PMDC gearmotor with custom wiring, shaft, mounting and encoder. The gearmotors provide high torque and precise motion, are small enough to fit the portable application, and proved to be a more cost competitive solution.

The custom gearmotor design included:

- Totally enclosed type 24A-60P, 24V planetary PMDC gearmotor with needle bearings for high peak torque and long life.
- Sealed gearbox, high-performance lubricant for outdoor applications
- Built-in encoder, 1000 PPR, quadrature signal is fed into 2-axis motion controller for precise elevation, azimuth, and polarization angle adjustments
- Watertight wiring harness
- Modified mounting and shaft

Bodine brings over 110 years of problem solving experience to a wide range of applications in industries as diverse as energy production, medical, packaging, industrial automation, and solar powered outdoors equipment. We look forward to working with you on your next fractional-horsepower gearmotor design challenge.

application insights

The Design Requirement

A mobile satellite antenna required compact, high-torque gearmotors for precise positioning

The Solution

- Two 24VDC PMDC planetary gearmotors with high peak torque capability
- built-in 1,000 PPR encoder
- Watertight wiring harness and gearmotor provided protection from the elements



Standard Bodine type 24A-60P permanent magnet DC planetary gearmotor, rated IP-66 ([click here](#) for more information)



Also available: type 22B-60P brushless DC planetary gearmotor, rated IP-44 ([click here](#) for more information)