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CASE STUDY

Performance Evaluation of GigaTorque GX™ Timing Belts in Fin Fan Applications

GigaTorque GX™

Company Name
Vistra Corp

Industry
Power Generation

Location
Texas

Application
Fin Fan Systems, 50 units

Overview

At a Vistra Corp power generation facility in Texas, maintaining consistent performance across fin fan systems had become a persistent challenge. The operation relied on a high-torque carbon synchronous belt designed for chain replacement that required frequent adjustment, leading to increased maintenance demands and operational inefficiencies. With approximately 50 fin fans in operation, these issues compounded over time, creating a significant maintenance burden, along with increased downtime and labor costs.

Key Challenges

- High-heat operating conditions
- Constant re-tensioning requirements
- Ongoing maintenance demands
- Increased downtime and labor costs

The Solution

MBL (USA) Corporation introduced the Mitsuboshi GigaTorque GX™ 200G14M3850 timing belt as a direct replacement solution.

To validate performance, the facility conducted a structured, two-year side-by-side evaluation under real operating conditions:

- GigaTorque GX™ vs. competitor's high-torque carbon synchronous belt comparison
- Two sets of fin fans were tested simultaneously
- 30 belts evaluated per manufacturer

The GigaTorque GX™ timing belt demonstrated superior performance in high-temperature conditions, eliminating the need for frequent re-tensioning while maintaining consistent operation.

The Mitsuboshi GigaTorque GX™ timing belt, developed for optimal power transmission, integrates high-tensile carbon fiber, a proprietary H-NBR rubber compound, and specially treated nylon tooth fabric. Prioritizing strength and flexibility has resulted in a narrower belt width, enhancing machinery performance through space efficiency and reduced weight. Additionally, the GigaTorque GX™ ensures remarkable lightness and quiet operation. These attributes enable it to replace metal chains.

Rubber: H-NBR

Cord: Carbon Fiber

Tooth Fabric: Special Nylon

Temp Range: -4° to 212°F

CHARACTERISTICS

- Outstanding power transmission
- Compact design
- High-speed drive
- Reduced maintenance frequency
- Enhanced noise reduction
- High-temperature resistance
- Weather resistant

PROFILE & RANGE

Measurements in mm

Profile	Tooth Height	Belt Thickness	Pitch	No. Teeth	Range
G8M	3.5	6.10	8	80-560	640-4480
G14M	5.6	9.8	14	71-315	994-4410

Overhead view of fin fans systems at the Vistra Corp energy facility.

The Results

The results were clear and measurable. By eliminating the need for routine re-tensioning, maintenance activity was significantly reduced across all fin fan systems. During the two-year trial, 30 belts per manufacturer were evaluated across two fan sets, with GigaTorque GX™ demonstrating consistent performance in high-heat conditions. Following the trial, the facility transitioned fully to GigaTorque GX™, replacing the competitor's high-torque carbon synchronous belts across all 50 fin fans.

- Eliminated routine re-tensioning
- Reduced maintenance labor
- Lower replacement frequency and costs
- Proven in a two-year side-by-side trial

Summary

By switching to GigaTorque GX™ belts, the Vistra Corp power generation facility eliminated routine tensioning requirements and reduced maintenance demands across 50 fin fan systems operating in high-heat conditions. The successful two-year evaluation supported a full facility-wide conversion and positioned the solution for expansion across additional sites.

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