



Product

Custom Ameriflex Coupling

Application

Gas Turbine

Highlights

- High-speed diaphragm couplings
- 1,310,000 in.lbs. (148,011 Nm) peak torque rating
- 6,000 RPM maximum speed rating
- Diaphragms designed for infinite life using Finite Element Analysis verified by strain gage and dynamic testing
- Low bending moment and axial force
- Maintenance-free
- Meets API 671 requirements

A major global oil and gas turbomachinery OEM required a coupling solution for a replacement gas turbine being built for a natural gas company in the Middle East. The coupling connects a gas turbine to a series of three inline compressors within the drivetrain.

Ameridrives provided custom designed Ameriflex diaphragm couplings that met the challenging application requirements, including the ability to transmit 20,000 HP @ 4,600 RPM. The large units also needed to have a 111" BSE (between shaft ends) while maintaining a low weight. The high-speed operating conditions, along with the extended length and weight requirements caused LCS (lateral critical speed) concerns.

The Ameriflex RR (reduced ratio) coupling supplied featured a 20" OD spacer that was almost 100" long. The large diameter was required due to the extreme length. The unit was one of the longest single spacer couplings designed by Ameridrives. The custom coupling design was validated using FEA (finite element analysis) to ensure it would meet the long life performance requirements.

Using state-of-the-art manufacturing processes, Ameridrives has developed a unique *integral filler* diaphragm pack that allows for greater design flexibility. Ameriflex couplings enable users to reliably compensate for the increased demands of high-performance turbomachinery. The inherent low axial and bending stiffness of the multiple convoluted diaphragm reduces bearing loads, which can increase equipment life.

Ameridrives was selected to provide the coupling over other manufacturers because they had proven history on similar designed couplings, were able to produce an approved technical design, and had a lead time that fit within the tight delivery schedule.

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