



## Product

## Custom-designed Disc Coupling

## Application

## Natural Gas Compressors

## Highlights

- One of the largest TB Wood's couplings ever built featured a 10 million in.lb. rating, a 36 in.dia. bolt circle, and weighed 10,000 lbs.
- Compressors rated at 10,000 HP
- Motors rated at 7,500 HP at 180 RPM or 10,000 HP at 360 RPM
- Superbolt® Torquenuts® bolts incorporated for use with standard half-inch drive torque wrench
- Two couplings have been delivered and installed

After salt had been extracted from subterranean deposits by solution mining, the resulting salt domes located in Louisiana, offered storage space for natural gas. Pumping the gas into and out from these domes called for unique compressor couplings. The facility has two 10,000 HP natural gas compressors and two gas dehydration systems. Several coupling manufacturers were contacted. Ultimately, the customer determined that TB Wood's/Ameridrives had the resources and desire to work with them to develop and produce a custom-designed coupling to meet their very stringent requirements.

Due to torsional considerations, the customer wanted the compressors to run slower than they were designed to run, so they modified the units to be able to meet their needs. Because of the high horsepower and low speed required, none of

TB Wood's standard couplings would fit the application. For this project, TB Wood's engineers worked with torsional vibration analysts. After a full analysis of the entire system it was determined that, in order to torsionally tune the system, the standard coupling stiffness had to be increased to an astounding  $5.0 \times 10^9$  in. lb./radian.

To design this coupling, TB Wood's engineers employed proprietary design formulas and software, and Finite Element Analysis. The combined application engineering knowledge and advanced technologies of Altra Industrial Motion's Engineered Couplings Group came into play. TB Wood's, Ameridrives Couplings, and Bibby Transmissions, all contributed in this successful development process.

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