

Application Success Story



HIGHLIGHTS

- High performance, economical disc coupling
- Scalloped disc pack optimized for compressor applications
- 300 series stainless discs
- Uncoated or optional coated discs
- Phosphate coating standard on components
- Shrouded fasteners for reduced windage
- API-671/ISO10441 compliant

Turboflex Plus Disc Couplings Petrochemical Plant Compressors

PROBLEM

The largest turbomachinery OEM in China, Shenyang Blower Works (SBW), Shenyang, needed an economical, high performance coupling solution for compressor applications used at an anhydrous ammonia (NH₃) fertilizer processing facility. There are 5 major compressor trains at the plant including air, feed gas, syngas, CO₂, and ammonia. Each train utilizes 2 to 3 couplings that connect drive motors and steam turbines to gearboxes.

SOLUTION

Regal Rexnord engineers, together with a local distributor, collaborated with SBW compressor designers to develop custom versions of the new Turboflex Plus high performance disc coupling. Various coupling models were designed with overall lengths up to 60.3 in., max. speeds up to 11,000 RPM, and max. torques up to 70,000 Nm for each of the specific compressor train applications. When the optimum compressor train operating speed is close to critical speed, high vibration can occur making it impossible for the equipment to run. During the compressor train design process, Regal Rexnord engineers modified their coupling designs resulting in the movement of lateral and torsional frequencies away from the operating speed.

Creative engineering, state-of-the-art manufacturing capabilities, plus higher volumes achieved by combining various product technologies yielded a cost-reduced coupling that meets market demands for high performance at an economical price. Regal Rexnord's new Turboflex Plus couplings combine proven Bibby Turboflex and Ameridrives® Ameridisc disc coupling attributes together with the experience of the Ameriflex diaphragm coupling to create an engineered solution that is ideally suited for sensitive high speed turbocompressors.

Turboflex Plus couplings are available with optional overload protection features to limit secondary damage in the event of a disc pack failure.

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