



**Product**

## Modified Standard Ventilated Clutch

**Application**

## Hurricane Simulator

**Highlights**

- Modified, 21" diameter dynamically balanced clutch
- 350,000 lb.in. torque rating
- 1,086 in<sup>2</sup> of lining area with special high-energy linings
- Custom bored hub
- High-speed air tube and hoses
- Steel pressure plate

A heavy-duty clutch was needed for a massive storm simulator at the University of Florida. The new simulator is a unique machine that creates dynamic simulated Saffir-Simpson Scale Category 5 pressure events that produce rapidly fluctuating, positive and negative pressures on a test specimen to determine at what level failure, if any, occurs. The material specimens, including both sectional and roll-up garage doors, entry doors, windows, curtain walls, siding, shingles and soffits, are mounted into a 20'-5" tall x 26'-6" wide x 4'-8" deep air box.

A clutch was required to provide a frictional interface which brings an 80" diameter fan up to the same RPM as the driving diesel engine. The engine is coupled to a drive shaft and the clutch couples the drive shaft and the fan shaft.

Wichita Clutch, together with their distributor partner, Torque, Inc., were called in to help determine an ideal clutch solution for the project. After studying the HP and torque curves of the Caterpillar 12-cylinder, 1800 HP engine, they recommended engaging the clutch at a very low idle RPM to limit initial heat buildup.

Wichita designed and manufactured a modified Standard Ventilated clutch with 3 plates to meet the unique performance expectations. The relatively small, 21" diameter unit was able to rotate at the high 1,750 RPM of the engine. The clutch was dynamically-balanced and featured a torque rating of 350,000 lb.in. and 1,086 in<sup>2</sup> of lining area with special high-energy linings, a custom bored hub, high-speed hoses and a high-speed air tube and steel pressure plate.

While competitor clutches could not handle either the excessive heat nor the high speed requirements, the Wichita Standard Ventilated dry friction clutch is designed to stand up to the massive inertia of the 17,000 lb. blower fan assembly while providing smooth controlled starts.

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