

Abstract

Fan Control System with Sensors

A fan system includes a motor, a rotatable hub, and a plurality of fan blades. The motor is coupled with the hub by a hollow drive shaft, such that the drive system of the fan system is gearless. The motor is controlled by a PFC-based control module, which is in communication with sensors that are configured to sense parameters associated with operation of the fan system. The control module is configured to react in certain ways to certain conditions detected by the sensors, such that the fan system uses feedback-based control algorithms. A remote control panel is in communication with the control module. The remote control panel is operable to display fault conditions detected by the sensors. Blade retainers prevent fan blades from falling when a fan blade breaks free from the hub. Pins prevent the hub from falling when the hub breaks free from the rotor.

[Fig. 4]