

SmartSet Application: Compressor Drive



Application

Siemens is a well known supplier to the compressor market. The location in Duisburg, Germany manufactures different types of compressors and they have also the capability to design complete packages with motor, drive train and compressors.

Customer benefit

- Reduction of system's transient torques
- Protect the drive train from overload and catastrophic failure
- Increased availability of the whole plant

Customer

Air Liquide, U.S.A.

The end user Air Liquide is a producer of oxygen and nitrogen for a pipeline system.

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Technical specification SmartSet SM-F 300

Max. controlled slip torque	130 kNm
Speed	1,200 rpm
Power	8,000 HP
Outer diameter	508 mm
Shaft diameter	220 mm
Length	298 mm
Weight	240 kg



Former problem

By the year 2000 the two original 7,000 HP motors were near their end of life as they were run under almost continuous overload conditions. The new motors have solid pole rotors. As the design is relatively compact, the new 8,000 HP replacement motor fits in the footprint of the old 7,000 HP motor.

However the transient vibration analysis revealed a problem with increased motor power and use of a solid pole rotor.

Solution

To limit the peak starting torque and meet the 5,000-start requirement, a SmartSet SM-F 300 was selected and installed between synchronous motor and compressor in 2003. The coupling was set to limit torque over 2.5 the nominal torque.

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