# Case Study — Gas Compression

## AT A GLANCE

**CUSTOMER**
Estis

**LOCATION**
Big Spring, Texas

**CHALLENGE**
Reduce over cooling of process gas due to constant speed direct-drive fans.

**SOLUTION**
Created a new Horton fan clutch by innovating on existing technology currently in production.

**RESULT**
The new Gas Thermal Control Clutch vastly improved thermal control by decoupling process gas temperatures from the ambient temperature thus preventing scrubber liquid condensation and dump cycles.

**WHY HORTON?**
Horton brings decades of experience in thermal management to a wide range of industries using both existing and custom solutions.

# Horton's Gas Thermal Control Clutch Solves Overcooling Problem in Gas Compression

Estis' KTA19-JGA/4 Compressor Package

## Background

Estis, now a part of Flowco, Inc., is a leading expert in well pad compression, helping operators maximize uptime, production, and profits. Headquartered in Houston, Texas, Estis operates across major oil and gas production regions in the United States. As an industry leader in well pad compression services, Estis continually seeks design improvements to optimize performance. One key operational challenge is maintaining optimal process gas temperatures to ensure efficiency and prevent hydrate formation. Recognizing a gap in cooling control, Estis partnered with Horton Inc., a thermal management solutions expert, to explore the implementation of advanced fan control technologies.

*"The fan clutch does exactly what it's supposed to - controls process gas temperatures, reduces liquid condensation, saves horsepower, and keeps both engine and compressor safely in range."*
*Carson Eskew, Estis*

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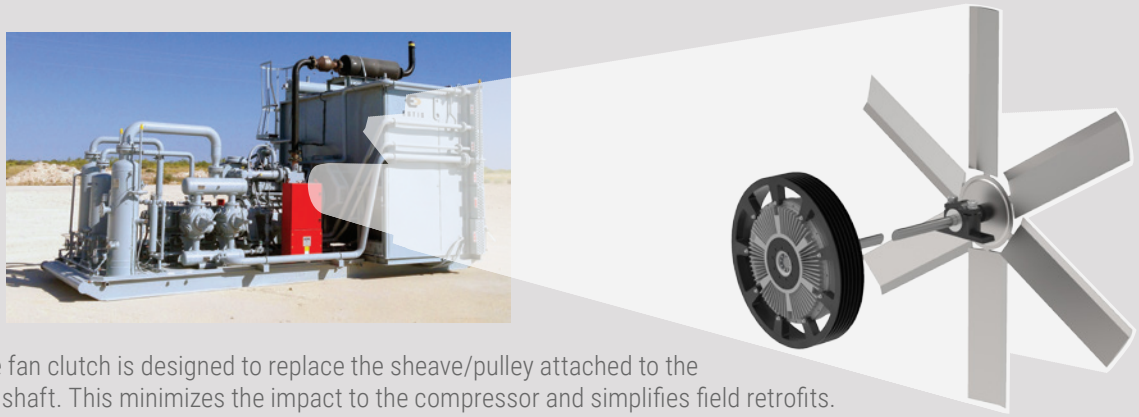

The fan clutch is designed to replace the sheave/pulley attached to the fan shaft. This minimizes the impact to the compressor and simplifies field retrofits.

## Problem

Estis identified a widespread issue: overcooling of process gas and jacket water due to constant-speed, direct-drive fans. This problem is especially prevalent in cooler months, even with manual or pneumatic louvers in place. Overcooling can lead to hydrate formation, which risks damaging compressors or taking them offline for extended periods. Additionally, excessive cooling forces operators to flare, or recycle high-BTU gas thus reducing efficiency and increasing costs. Maintaining discharge temperatures of process gasses is difficult and without the ability to adjust airflow was leading to increased service calls, maintenance, and reduced mechanical availability. Many work-arounds were attempted but it was clear Estis needed a precise and automated method to control airflow and temperature.

## Solution

Horton, with decades of experience in thermal management for industries such as trucking, mining, power generation, and agriculture, proposed a customized solution. A fan drive compatible with the industry-standard fan used in Estis compressors. The system dynamically adjusted fan speed based on real-time data from multiple process gas temperature sensors, jacket water, and compressor oil temperatures. This data-driven approach enabled precise fan speed control according to customized performance maps.

Following successful winter field tests in Texas, a new product was born, the Gas Thermal Control Clutch. This design replaces the existing driven sheave on the fan shaft, requiring minimal changes to the compressor package. After programming temperature setpoints and connecting the wiring harness, the clutch modulates fan speed precisely—working in tandem with automatic louvers to deliver optimal temperature control.

## Outcome

During extended testing across both winter and summer seasons, the system demonstrated a significant improvement in thermal control. Average fan speed dropped to 175 RPM—down from the previous constant speed of approximately 510 RPM—with brief increases during peak demand. Process gas temperatures were maintained within optimal ranges, preventing a majority of the scrubber liquid condensation and subsequent scrubber dump cycles. The system successfully decoupled process gas and jacket water temperatures from ambient conditions, ensuring stable and efficient compressor operation year-round.

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