



Texol Case Study

In 2004, a state agency with additional duties as a backup lab to the CDC came to Texol with a problem. They owned two ABI LC/MS systems that were less than 3 years old, and which were originally purchased with the Peak Membrane-style Nitrogen generators. The Peak units had already burned up compressors and the decision was made to replace them rather than invest several thousand dollars to rebuild the compressors. The client was also concerned that the nitrogen supplied with these units was barely adequate to serve a single system's nitrogen requirements.

In addition to the two ABI LC/MS units, the client also owned four additional LC/MS and ToF MS systems which also required extensive nitrogen supply. The facility was only a few years old and was built with liquid nitrogen bulk tanks to supply the estimated requirements for the facility. However within a few years of construction, the facility's usage of nitrogen exceeded capacity and the lab turned to a combination of generators and dewars to meet the nitrogen supply for these six systems.

Texol sold this client three (3) Texol NGLCMS60 units (60 Liter/min) – each served by a dedicated Powerex SES0308 scroll compressor. Each of the three LCMS60 units was set up to handle the flow requirements for 2-3 MS systems.

In 2007, another lab in the same facility needed nitrogen to serve additional LCMS systems and two more LCMS60 units were purchased. However, the client wanted to use the available house air for the compressed air source. House air was readily available and was being under-utilized. The only problem was that the feed air pressure was at 80 PSI and inadequate to serve a PSA-style generator.

To meet the client's needs, Texol US configured a Midwest Pressure Booster to the system. The Midwest Pressure Booster is an air driven second stage compressor which takes as low as 80 PSI air and boosts it to 145 PSI which is required to feed a PSA style nitrogen generator. The booster teamed with house air now provided feed air required to serve both LCMS60 units from a single booster. There was one lingering problem in that the client had no mechanical room or closet in which to house the booster. The immediate solution was to place a sound dampening case over the booster to deaden the sound, but the client requested that Texol US come up with a more integrated solution for future needs.

As Texol endeavored to create this new product, we encountered a secondary problem. Humidity in the lab was a major issue in this lab in the summer months. In fact at certain times of the year, it was not uncommon to find it "raining" in the lab. Moisture retention in the feed air and subsequently introducing it into the nitrogen generator was causing

solenoids to fail prematurely. This wasn't a long-term damage to the LCMS60 unit, but was causing unplanned downtime in the lab. Thus a solution to both issues was incorporated into the new Tranquil Storm Booster Module.

In 2008, Texol US designed the Tranquil Storm Booster Module as an accessory available to our NGLCMS series clients. Tranquil Storm is comprised of pre and post filtration, a regenerative dryer and a pressure booster all encased in a silencing cabinet. The purpose of the Tranquil Storm Booster Module is to assure that house air is oil-free, dry and pressure boosted to supply the Texol NGLCMS Generator with the proper feed air. The silencing cabinet in which it is housed takes the sound from about 80 dBA to about 60 dBA.

In addition, the module is designed to fit underneath a single LCMS60 cabinet but can supply the proper quality and quantity of feed air to serve up to three (3) LCMS60 units from a single booster module.

So, the 1st 3 LCMS60 systems, originally sold with individual SES0308 compressors were upgraded in 2008 to remove the 3 compressors and replace them with a single Tranquil Storm Booster Module. The booster is also better able to maintain constant pressure than a traditional compressor. This is especially important for systems such as the ABI LC/MS which create an error if the pressure drops below 100 PSI.

Lessons Learned:

Why would a client want to use a Tranquil Storm Booster Module instead of a compressor?

- 1) To save floor space. Laboratory space is valuable real estate. Being able to reclaim even a few square feet can mean the ability to install another piece of instrumentation.
- 2) To save maintenance time and costs. The Tranquil Storm Booster Module can perform in the place of up to 3 LCMS60 units or 6 LCMS30 units. The cost of maintenance in time and parts is less than 50% of that required to serve a single compressor.
- 3) To utilize existing resources. Compressors contain the moving components in a gas generator system and as such are more prone to maintenance requirements. Removing the maintenance from the laboratory and transferring it to the facilities maintenance staff (by utilizing house air compressor systems), allows the lab to maximize the use of existing infrastructure and staff.
- 4) To utilize existing utilities. Compressors generally require 208 single or 3 phase service. This often requires hiring an electrician to install this service. Using the Tranquil Storm Booster Module allows most labs to utilize an existing 110V circuit to handle the electrical requirements for both the booster and the nitrogen generator.
- 5) To allow for expansion. Perhaps only one nitrogen generator is required today but the client wants to have flexibility for future LC/MS purchases. With the purchase of the Tranquil Storm Booster and the first NG LCMS Nitrogen

Generator, clients are able to add on additional nitrogen generators without adding another booster or compressor.

- 6) To save money. A Tranquil Storm Booster module replaces as many as six individual compressors at the cost of \$1,000 less than a single compressor.

Texol US listens to our client's problems and comes up with innovative solutions. To find out more about how you can benefit from our years of experience and "out of the box" thinking, please contact us at (866) 733-7279. A live specialist will assist you with your questions and make suggestions on how we can best solve your issues in the lab.