

Using Mechanical Seals: Increasing Reliability and Reducing Costs

How one of the worlds largest chemical companies significantly reduced seal expenditure.

Choosing a single supplier has saved Eastman Chemical Company, with headquarters in Kingsport, Tennessee, 25 percent on its annual expenditure for mechanical seals at its Tennessee Operations site.

These impressive results follow Eastman's selection of AES Engineering Ltd. (AESSEAL®) as its mechanical seals provider.

With the current trend to consolidate suppliers intensifying, many end-users are extending their consolidation initiatives to engineered products such as mechanical seals. Eastman's Tennessee Operations formed a team to evaluate each pre-qualified mechanical seal manufacturer.

They had redundancy in their inventory and stocked a number of seals that were probably interchangeable with other brands. All the seals - over 2,000 lines - had a Global Material Number (GMN). The team benchmarked the historical expenditure for mechanical seals and developed a strategy to select a single supplier, one that could locate on-site and become the "channel supplier" for all the company's mechanical seal requirements.

Single Supplier

"The selected supplier's job would be to identify the numerous duplicate designs and to provide a 'seal of choice'", said team member Phil Hensley. These were the seal designs that would be suitable for 80 percent of Eastman's applications.

Included in the team's strategy for selecting a supplier were performance measurements such as inventory stocking levels, stock outs, on-time



Above: Tennessee Operations Chemical Plant.

delivery performance, number of seals issued for use, percentage of used seals returned for repair and the average mean-time-between-failure for failed seals (those seals with a previous failure history since the programs inception).

AES Engineering Ltd. passed all the tests to win selection as Eastman's "Channel Supplier". Now the UK company has not only met the Tennessee Operations' supply demands but has also designed special seals to meet some of the sites more unusual technical needs.

"We worked diligently to understand the true needs of Eastman and formed a plan to exceed their expectations," said Rich Greatti, Vice President of Sales for AES. "We have a very dynamic company and are dedicated to meeting - and exceeding - customer service expectations."

The evaluation from the Eastman team was very thorough. It included site visits to AES' Knoxville, Tennessee operation as well as its Global Technology Centre in Rotherham, England. They investigated the company's viability and confirmed AES performance with references from other major corporations currently using their products.

Upon being selected, AES immediately formed a 20-strong project team, drawing from purchasing, design, application engineering and sales, to respond rapidly to the call.

AES Moves On Site

Within the first 30 days, AES had provided consignment inventory, built an on-site office, permanently relocated several employees and installed a CAD station.

By the end of 90 days, AES had designed a number of special seals, connected the CAD station to its Knoxville, Tennessee and UK operations using a high speed telecoms link and frame relay, and had hired employees for the other sites.

Eastman buyer Janey Osborne complimented the AES team, "It was a very smooth implementation because the effort was centrally controlled and professionally managed."

Within a few months, AES rolled out the program to Eastman's Arkansas Operations and Carolina Operations sites, and AES was also selected to service Eastman facilities in Europe. Multi-currency pricing was provided for each country that was uniform for each location. AES provided dedicated staff as required and the permanent team in Kingsport, Tennessee had grown to eight.

A single cartridge welded metal bellows seal and a single cartridge pusher mechanical seal were selected as the 'Seals of Choice'. The contract also gave AES a number of opportunities to design special seals. Solutions for lobe pumps, mixers, reactors and even blowers have been provided.

"We find ways to convert the existing OEM seals into special cartridge seals that incorporate standard face sets from our modular range of products," explained AES' Director of Engineering Alan Roddis.

Special seals have been delivered in a matter of days, and even complex reactor seals constructed from titanium have been designed and manufactured in under three weeks as part of AES' commitment to Eastman.

Roddis added, "The primary strategy for our contracts is to positively measure the performance of mechanical seals. As part of our corporate contract management package, AES has developed an innovative suite of databases that essentially provides the application support data on a central platform."

The Environmental Technology Software Suite of databases consists of seal selections by chemical application, equipment retrofit databases, and heat generation calculations, all integrated with a comprehensive site survey program that measures the Mean-Time-Between-Failure (MTBF) for each application. This data is analysed on a monthly basis and fed into the summary performance measures, which are reviewed by a seal contract team.



Above: The Tennessee Operations at night.

Jim Cornelison of Eastman's Contract Services commented, "Not only have we benefited from a substantial purchase cost saving, we are also improving our MTBF. The increases are occurring as we work in concert with AES. "

Award

In June last year (2000), Eastman confirmed AES' success with one of its highest accolades - the Innovation Award under the Eastman Supplier Excellence Program (ESEP).