Implementation and Success of Preventive Maintenance Plan for Electric Actuators at an Ethylene Plant in Johor, Malaysia

RESULTS

- Enhanced operational reliability, minimizing the potential risk of downtime.
- Prolonged the service life of critical motor operated valves (MOV) assets by addressing early signs of degradation.
- Improved safety compliance, meeting the facility's stringent standards.
- Provided a comprehensive preventive maintenance report with actionable recommendations for future maintenance planning.



The maintenance activities included detailed tasks aimed at ensuring optimal performance and longevity of the motor-operated valves

APPLICATION

This state-of-the-art ethylene plant, strategically located in Johor, Malaysia, is responsible for the extraction, processing, and distribution of various petroleum and gas products. Given its significant role in supporting the local and regional energy supply chain, the facility operates under stringent standards for safety, efficiency, and environmental compliance. The facility incorporates advanced technologies and comprehensive maintenance protocols to ensure uninterrupted operation, thus contributing to the stability and growth of the energy market in Southeast Asia.

Electric actuators are employed in various critical locations in the plant to optimize flow control and inventory management. In tank farm areas, motor-operated valves (MOVs) facilitate the transfer of substances such as Monoethylene Glycol (MEG) and Diethylene Glycol (DEG) between pumps and storage tanks. In loading arm zones, they regulate the flow of materials like Triethylene Glycol (TEG) and Butadiene during loading operations. Additionally, in transfer lines, electric actuators manage the interconnections between tanks and pumps to ensure efficient and precise flow regulation.

CUSTOMER

An Ethylene Plant in Johor, Malaysia.

For more information:
www.emerson.com

EMERSON

FCMM-20216-EN 02/25 © Emerson 2025

CHALLENGE

During the initial startup and after commissioning, facilities generally encounter several operational challenges linked to their pipelines and associated components. One of the primary issues involves the accumulation of moisture, leading to white residue being observed in cable glands and terminal compartments of electrical equipment like actuators. This water ingress and residue build-up could result in various operational challenges and potential damage over time if not addressed.

SOLUTION

Emerson's distributor, MATCO Malaysia, has conducted comprehensive Preventive Maintenance (PM) on 49 electric actuators from Emerson, which constitute a critical portion of the facility's infrastructure. The maintenance activities encompassed a series of meticulous tasks designed to ensure optimal performance and durability of the motor operated valves. Key tasks included thorough inspections of the external surfaces, control systems, and MOV functionality to detect signs of wear and degradation. The team also carried out tightness checks on mechanical fasteners and connections to uphold structural integrity. In addition, inspection and replacement of O-rings in terminal, motor, and electronic compartments were performed to restore sealing efficiency. To facilitate smooth valve operation, the valve stems and actuator bushings were cleaned and re-greased.

Further, the maintenance team executed gear oil drainage, refilling, and continuous monitoring to avert lubrication-related failures. Immediate actions were taken to address critical findings such as oil leaks and moisture ingress, thereby preventing potential operational disruptions. Through these efforts, MATCO Malaysia ensured that the electric actuators remain reliable and efficient, thus supporting the facility's overall operational stability.

The successful preventive maintenance campaign execution showcases Matco Malaysia's capability to manage large-scale, complex projects efficiently while delivering tailored, high-quality solutions.



Gear oil drainage, refilling and continuous monitoring to avert lubrication-related failures.

FCMM-20216-EN © 2025, Emerson. All rights reserved. The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their respective owners.

Neither Emerson nor any of its affiliated entities assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

For more information:
www.emerson.com

EMERSON