Eaton's exhaust heads create a winning solution for chemical manufacturer

“The customer is realizing significant savings by reducing its water consumption and lowering its energy costs.”

Anthony Chiang, business development manager

**Background**

Companies are faced with the growing challenge of reducing water consumption and protecting valuable resources while identifying business opportunities that comply with these mandates. According to the International Water Management Institute, a 35 percent increase in water efficiency today can reduce demand for fresh water in the future by more than half.

A USA-based chemical manufacturer that operates one of the largest anhydride plants in North America wanted to address this mandate by recycling water lost during production back into the manufacturing process.

**Challenges**

The manufacturer was experiencing functional difficulties with the plant’s existing exhaust head, which is a critical component to reduce the amount of moisture particles released into the atmosphere. Free moisture was being discharged into the atmosphere, causing corrosion on the manufacturing plant’s steel structure and creating potentially hazardous working conditions.

In addition, it was getting increasingly expensive to replace the water that was being lost into the atmosphere. Energy costs associated with altering steam pressures and flow rates during the production of anhydrides were also escalating.

Finding a quick solution to deteriorating conditions was essential to reducing costs, maintaining the normal operations in the plant and reducing the amount of...
condensate “rains” from the vent stack. It was soon determined that a new exhaust head was needed because the existing equipment was not separating enough water.

**Solution**

Looking to improve the conditions within their facility, the plant manager turned to Eaton’s Filtration Division for solutions. The team at Eaton recommended a new cast iron Type 40 EHC Separator Exhaust Head to address the issue.

Featuring a rugged design for use in the industrial and processing industries, the 40 EHC exhaust head separates entrained water droplets from exhaust air prior to being discharged directly into the atmosphere. The 8-inch exhaust head is designed to remove up to 99 percent of liquid and solid entrainment larger than 10 microns from the discharge flow. The highly efficient design of the exhaust head minimizes any free moisture discharged into the atmosphere thereby reducing the “rain drops” and reducing structural maintenance costs.

**Results**

Anthony Chiang, business development manager for Eaton, notes that by minimizing the discharge of free droplets into the atmosphere, corrosion on the steel structure has been eliminated. The condensate “rain” that had been plaguing the plant for years was now a thing of the past.

“The customer is realizing significant savings by reducing its water consumption and lowering its energy costs,” adds Chiang. “They have been very pleased with the installation and its impact on the bottom line. Process water that was being released as damaging moisture is now being collected and put back into the manufacturing process.”

The company’s plant process engineer agrees that installing a new exhaust head was an important improvement in their system and key in maintaining their facility. They are very satisfied with the solution provided by Eaton.

**Eaton’s Type 40 EHC Separator Exhaust Head**

Moisture-laden gas, air, or steam enters at the inlet of the exhaust head where it is directed into a centrifugal upward motion. The entrained solids and moisture droplets are separated out by a reduction in velocity and fall into a drain reservoir.