M-D Pneumatics®

CASE STUDY

PROTECTING BLOWERS USED IN WASTEWATER TREATMENT APPLICATIONS FROM CORROSION

PROJECT OVERVIEW

Purestream required a robust blower for their wastewater treatment solutions that was capable of reaching specific flow and pressure requirements while tolerating the harsh environment of mechanical vapor recompression (MVR). Since vapor recompression often includes water injection to help keep the working fluid saturated for condensation and to generate heat waste into energy for re-use, Purestream needed a blower that can withstand a corrosive environment. This helps reduce downtime and increases the production lifespan of the blower.

ABOUT PURESTREAM

Headquartered in Salt Lake City, Utah, Purestream is a privately held water management company formed in 2010 with a focus on designing and building water treatment systems to handle wastewater for discharge, re-use, and in some instances flash water evaporation. Supported by a team of engineers and skilled equipment operators, Purestream has expanded their wastewater treatment solutions from oil and gas applications to also include utilities, mining, food processing, municipal wastewater, and more over the course of a decade.

SOLUTION

Over the course of M-D Pneumatics® and Purestream's 9-year partnership, a history of collaboration has resulted in learning new and emerging technologies, as well as new market opportunities. While other rotary lobe companies or manufacturers of multi-stage centrifugal blowers have approached Purestream, M-D Pneumatics remains their trusted choice for rotary lobe blowers due to our years of experience, ease of business, and value-minded products proven to withstand the harsh environments of their toughest applications.

When Purestream started mechanical vapor recompression applications, M-D Pneumatics was tasked with developing an efficient product that would meet the specific flow and pressure requirements to move vapor, as well as a solution to prevent corrosion while protecting blower seals from water injection. The PD Plus 1230 model met the flow and pressure requirements for an application requiring water injection to saturate steam for condensing. Instead of recommending a stainless-steel unit, a coating of nickel overlaid with chrome (Bi-Protect coating) was applied to the PD Plus unit, allowing Purestream to protect the PD Plus blower from corrosion while also saving on overall project costs.

In order to protect mechanical seals and decrease downtime, Kalrez seal elastomers were applied due to their ability to withstand temperatures up to 350°F during operation. In addition to these specialized mechanical seals, it is recommended including plugged rotors, a special lip seal in place of the standard lab seal, and a seal vent drain pot. All of these enhancements extend the mechanical seal and blower lifespans and allowed Purestream to effectively collect vapor and move it into the condensing phase.

PD Plus 1230 Blower with Bi-Protect coating.

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