HIGH TAPS SERIES

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HEUMANN ENVIRONMENTAL

MEETING BIOLOGIC DRUG STANDARDS WITH A HIGH SURFACE FINISH SPRAY DRYING SYSTEM

THE CHALLENGE

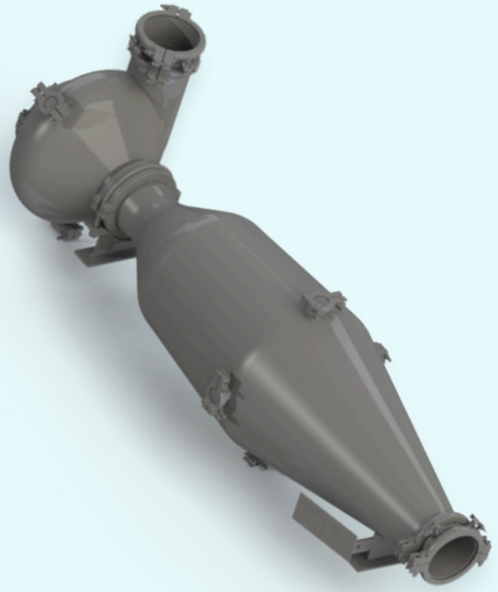
Manufacuring medications derived from living organisms (called biologic manufacturing) presents higher risks for contamination and failure than traditional pharma applications. Heumann Environmental's expertise in high-spec fabrication, sanitary surface finishing, and ASME/CE compliance made us the clear choice for this complex system, where precision and reliability are non-negotiable.

SOLUTION PROVIDED

Heumann Environmental (HEC) has supported biologic manufacturing for over a decade with custom spray drying and high-efficiency cyclone systems. This ASME Code stamped, CE certified spray dryer was rated for 145 psig to mitigate deflagration risk and required a highly specialized fabrication approach to meet ultra-smooth surface finish standards and complex geometry.

ENSURING SANITATION IN INACCESSIBLE SPACES

With no internal manual access and no



SYSTEM SPECIFICATIONS

CONSTRUCTION: SA-240 316 STAINLESS STEEL

DESIGN PRESSURE: 145 PSIG

SURFACE FINISH: RA < 10 MICROINCHES (INTERIOR & EXTERIOR)

DESIGN TEMPERATURE: 300 °F

PARTICLE SIZE: PRODUCES ≈2 µM PARTICLES

flanges permitted in the sprayer body, due to concerns over particle buildup and the additional thermal mass that pressure-rated flanges would introduce, this biologic spray dryer required a fundamental shift in our approach to fabrication. These limitations demanded not only an ultra-high surface finish, but a fabrication strategy that upheld sanitary standards while accommodating complex internal geometry.

ULTRA-HIGH SURFACE FINISH

To exceed stringent cleanliness requirements, HEC polished all surfaces to an Ra < 10 microinches, then applied a brief electropolishing process to passivate the stainless steel without removing additional material. The vessel was built from precision-machined, rolled, and spun components assembled from the inside out, ensuring full access for polishing prior to final closure.

COMPLEX AND CRITICAL GEOMETRY

The spray dryer's design had been validated to produce precise particle characteristics. Any deviation, however minor, risked triggering

requalification through stringent regulatory pathways. To avoid this, HEC precisely replicated the original geometry, fabricating the system in sections to ensure every contour matched the approved design.

RESULTS AND OUTCOMES

This system showcases HEC's ability to combine ASME-compliant pressure vessel design, precision fabrication, and ultra-high surface finishing to meet the strict standards of biologic drug manufacturing. Fully certified and now in operation, the system supports the production of high-purity biologic medications.