

## Pharmaceutical Containment

# We help you to handle highly active ingredients

Pharmaceutical research continues to develop more active ingredients and potent compounds. Thus the demands on containment in production installations are increasing and operator protection becomes even more important.

The basic design of the AVA conical mixer and dryer allows for easy and effective containment. They are, by their very nature, self-contained systems. Agitator shaft bearings and seals are located outside of the product area and not susceptible to product contamination. Clients can select from a variety of cGMP mechanical seals that have minimal dead space and are easy to clean. Accessories, such as pressure sensors, temperature probes, inerting or carrier gas nozzles, CIP nozzles, and sampling devices can be provided flush with the interior wall and free of dead spaces. High-grade butterfly or ball segment valves have minimal dead spaces and can be easily cleaned without disassembly.

A variety of strategies can be used to maintain containment up to  $1 \mu\text{g}/\text{m}^3$  for product charging, discharge, and dust filter maintenance. These strategies include split butterfly valves and bag-in, bag-out techniques. For containment below  $1 \mu\text{g}/\text{m}^3$ , glove boxes can be employed. These techniques, along with the self contained AVA system can be used so that highly active substances can be handled under clean room conditions.

The drawing illustrates a clean room mixing project. A potent compound together with auxiliary substances is filled under a closed hood into a transfer container to which the passive valve of a split butterfly system is attached. The container is docked onto the active valve on the mixer. Then the pair of valves is opened allowing the contained passage of the powder into the mixer. When the transfer is complete the valve is closed and the container is undocked leaving the two valve faces clean. Once the substances are mixed, they are similarly discharged into the transport container to be used for the next process step. With the same system and a dryer attached to a pivoting lifting column, products can be discharged from a centrifuge, dried and filled into transport containers under contained conditions.

AVA flexibly responds to clients' process conditions and requirements. We are prepared to design tailor-made solutions to any application presented by our clients.

