

Supplied Air Extruder (SAE) Hood

- Provides conditioned convey air to prevent adulteration of sterilized extrudate
- Achieves particle-tight sealing without gaskets
- Supports clean in place processes and is easily dismantled for various cleaning procedures
- Moving parts are internalized keeping operators safe and reducing the risk of environmental exposure
- Space saving design provides a smaller footprint and better fit for multiple extruder line applications



Application

The Supplied Air Extruder (SAE) Hood is a key component of the Coperion high feature Supplied Air Negative Airlift which conveys extrudate from extruder to dryer with HEPA filtered or treated convey air instead of potentially contaminated air from the extruder room floor. This is important to all pet food producers concerned with avoiding finished product bacterial contamination after the extrusion kill step.

Aerodynamic Equipment Features

- **Baffles** – the external design of the extruder hood creates internal baffles that restrain airflow, causing it to conform to the inside corner and eliminate turbulence
- **Discharge Gates** – the gates are angled/positioned to compliment the baffle placement and flow vane shape
- **Dual Air Flow Design** – splitting the airflow provides twice the resolution to distribute the diffused air across the extruder discharge zone and also provides laminar flow

As a result of the noted equipment features, airflow patterns within the hood are nearly identical to standard updraft hoods.

Operating Principle

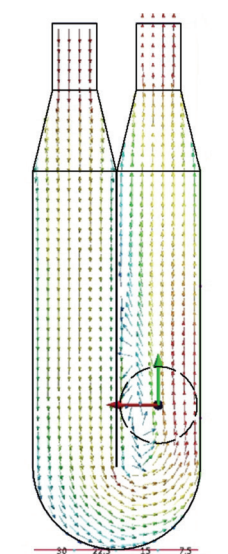
During the convey state and bypass state the valves within the SAE Hood will operate as follows:

- **Convey State** – During normal operation the bypass damper valve is opened while the discharge gates are closed. This allows supplied air to enter the top of the hood, split to each side of the hood, join together again just below the extruder discharge and convey material upward with minimal or no turbulence.
- **Bypass State** – During startup or upset condition the bypass damper valve is closed while the discharge gates are open. This prevents supplied air from entering the SAE Hood and directs it down the empty convey line.

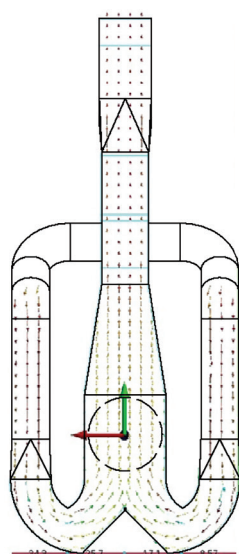
Features

Benefits

Front to back inlet/outlet	Allows the hood to be easily installed
Designed with modular components and weldments and alignment is accomplished with plate flanges	Achieves particle-tight sealing without gaskets
Inlet is split into dual routings feeding the diffuser plenum	Increased flow resolution allowing for equal distribution of laminar flow across the extruder die zone
Rotary/radial actuators and other moving parts are internalized	Safe and sealed from harmful contaminants
Monolithic like housing around the extruder discharge zone	Allows extruder/die adapter and the cutter/knife adapter to seal up against housing
Actuator simplicity – one solenoid for bypass damper and one solenoid for the discharge gates	Easy to install, wire and maintain
Swing away design or roll-away design options	Safe for operator to work on extruder die area
Space saving design	Better fit for processes with multiple extruder lines



NON-LAMINAR AIR FLOW THROUGH SINGLE INLET DESIGN LEADS TO CLUMPING



LAMINAR AIR FLOW THROUGH THE TWIN INLET DESIGN (Coperion Solution)

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