

Transvair Venturi Eductor Project Profile

A global leader in the manufacturing of spices, seasoning, and flavoring products approached Young Industries for help with a Food additive process problem. The customer was cooling a granular food additive with a bulk density of 35-60 pounds per cubic foot, and needed a way to have the additive then pass through a screener that was to be located two stories above the cooler. Any solution had to be suitable for food service, easily cleaned, designed to meet rather low throughput capacity of up to 750 pounds per hour, and be cost effective.

After Young Industries' applications engineers reviewed the problem, a TransVair Venturi Eductor dilute phase pneumatic conveying system was proposed, purchased, and provided.

A small, open top surge hopper was placed under the discharge of the customer's vibratory fluid bed cooler. The 2" Venturi Eductor was placed on the discharge of the surge hopper. The customer's plant compressed air supply was connected to the eductor. Product conveyed through a 2" OD convey line 20' horizontally, 30' vertically, and through three 90° elbows. Product was delivered to an 8" model 'P' Cyclone collector connected to the screener inlet. After separating from the product in the cyclone, the conveying air was exhausted to an existing dust collection system.

The system solved the problem to deliver product to the screener two stories above. The surge hopper, Venturi Eductor, and cyclone were constructed of polished 304 S/S and sanitary clamp type connectors and with all welds continuous and ground smooth, capable of being washed or cleaned in place or easily disassembled by hand for bath cleaning. Convey line elbows and 8' long straight sections were also constructed in the same manner, easily cleaned, assembled and disassembled by hand. The initial system was cost effective compared to mechanical conveyors and other dilute dense phase systems. Maintenance costs are minimal – no moving mechanical parts, no tools needed to disassemble, no heavy equipment needed to lift or move components for cleaning, and the only components that need maintained, which are a pressure regulator and on/off solenoid valve, are readily available off-the shelf components.