

Interconnection and Integration

Once the powder delivery mechanism is bolted to the deck of the host machine and the vacuum console unit and the electrical control panel are in place and secured below deck, the three modules need to be married together.

Plumbing the system is super simple. The powder delivery mechanism has only two available "push-on" tube fittings. Both lines are supplied as part of the package.

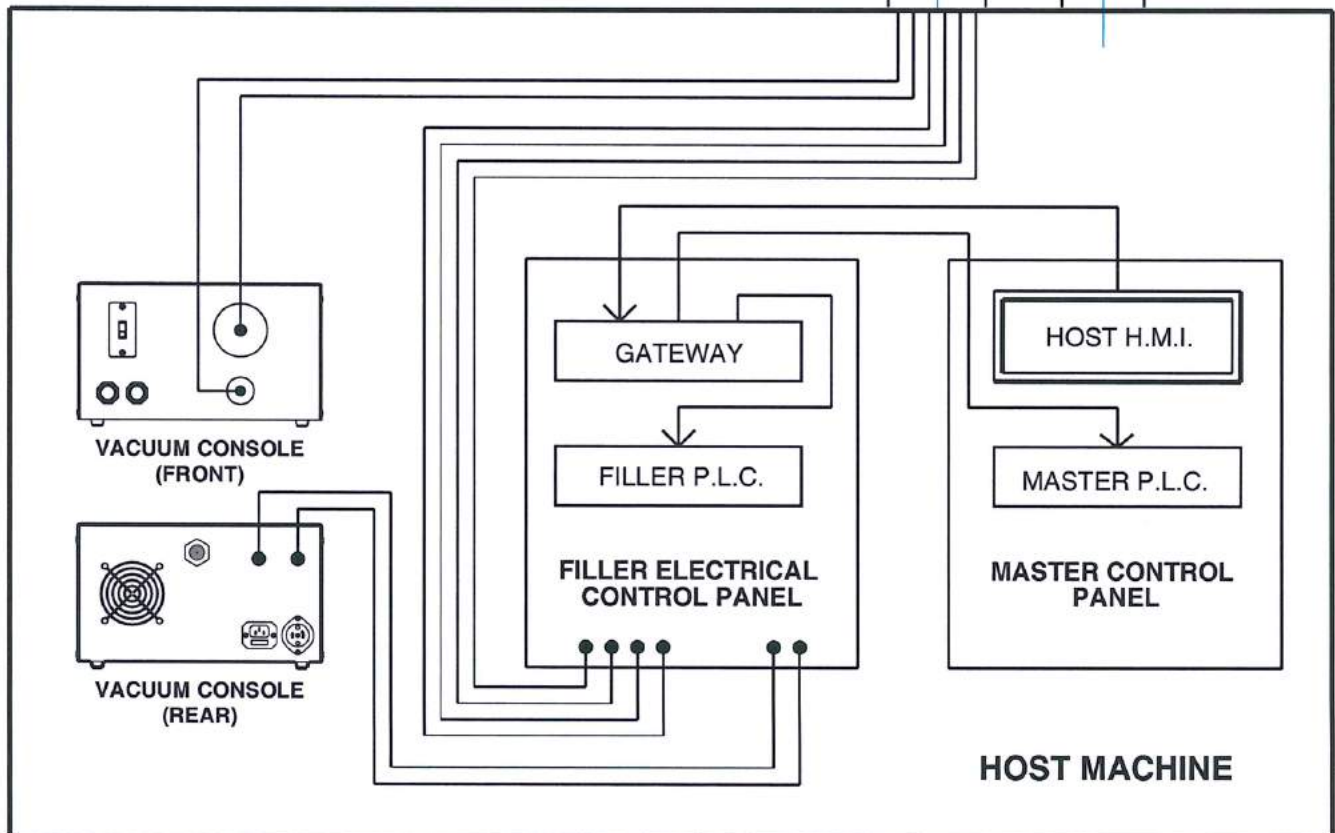
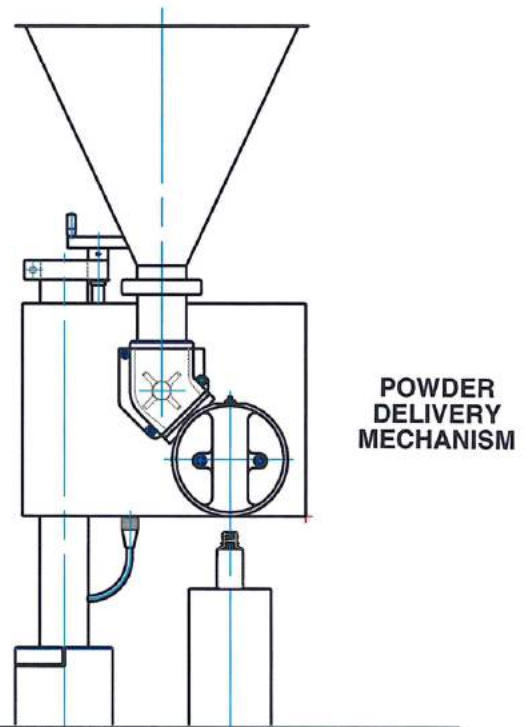
A.C. power is then connected to both the vacuum console unit and the electrical control panel. Power to the powder delivery mechanism is supplied to it from the electrical control panel.

Two (2) polarized control cables are provided to connect the proper terminal block positions on the electrical control panel to the vacuum console unit. Four (4) polarized cables are supplied to connect power and control signals between the electrical control panel and the powder delivery mechanism.

Easy peasy!

That's it for the wiring. The only remaining thing to do is to run a length of CAT5 ethernet cable from the H.M.I. resident on the host machine to the gateway aboard the filler's electrical control panel then back to the host P.L.C. This will provide access to both the host P.L.C. and the powder filler P.L.C.

The customer will also need to provide HMO screens which will allow access to the functions and display the faults of the PLC on the filler's electrical control panel. These functions will be explained and fully mapped in the documentation for the electrical control panel.



A robust mounting column, with a sturdy, small foot print, base-mounting socket supports the entire delivery mechanism and product hopper. It also provides means for limited Up/Down adjustment of the entire delivery mechanism and hopper via an integral hand-crank and lead screw arrangement. The socket is anchored to the top of the host's machine's deck. The column is then inserted into it and is clamped in place. The column is a non-rotatable, thick-walled, 316 stainless steel hollow tube. Tooling for this module completes the assembly. These Ø6.0" O.D. shuttle-disks are supplied with either a bored and honed single powder delivery chamber, or with dual, in-line, bored and honed chambers for simultaneous dual-chamber dose delivery. Standard material of construction for all product contact surfaces is 316 stainless steel alloy. Where higher abrasion resistance parts are warranted, the tooling may be treated with 65-68 RC, FDA compliant Nedox® coating.

MODULE 2 VACUUM CONSOLE



MODULE 3 ELECTRICAL CONTROL PANEL

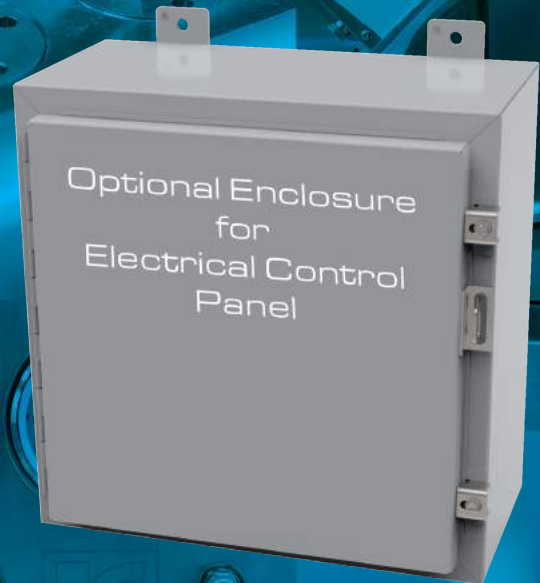


2. The Vacuum Console Module

This unit comprises a totally enclosed chassis encompassing a fan-cooled rotary vane vacuum pump, overload heater protection and an integral valve bank for directional control of the vacuum and positive-pressure air flow to the powder delivery mechanism. This element is intended for remote, "below-deck", installation. All required interconnecting air lines and electrical control cables are included. Available for 115 V. or 230 V. operation.

3. The Electrical Control Panel Module

This module is the brains of the system. It is also intended for installation "below-deck", remote from the powder delivery mechanism. All components required for actuation and control of the delivery mechanism and the vacuum console are included on this unitized panel. The on-board components include a dedicated P.L.C. with all required operational firmware embedded; a gateway to allow communication with the host-based H.M.I.; all required power supplies and output control relays; and control cables. The module is available in an "open" (i.e., non-enclosed) configuration suitable for mounting within the host's existing electrical cabinet, or in a completely enclosed configuration within a NEMA enclosure. Both these module are available for 115 V. or 230 V. operation.



Model 5500/MO Brochure

The following system modules are offered.

Consult the factory for specific part numbers.

- Powder Delivery Mechanism, Less Tooling for 115 VAC. Operation
- Powder Delivery Mechanism, Less Tooling for 230 VAC. Operation
- Vacuum Console, for 115 VAC. Operation
- Vacuum Console, for 230 VAC. Operation
- Electrical Control Panel, for 115 VAC Operation
- Electrical Control Panel, for 230 VAC Operation
- Enclosure, Electrical Control Panel, 115 or 230 VAC

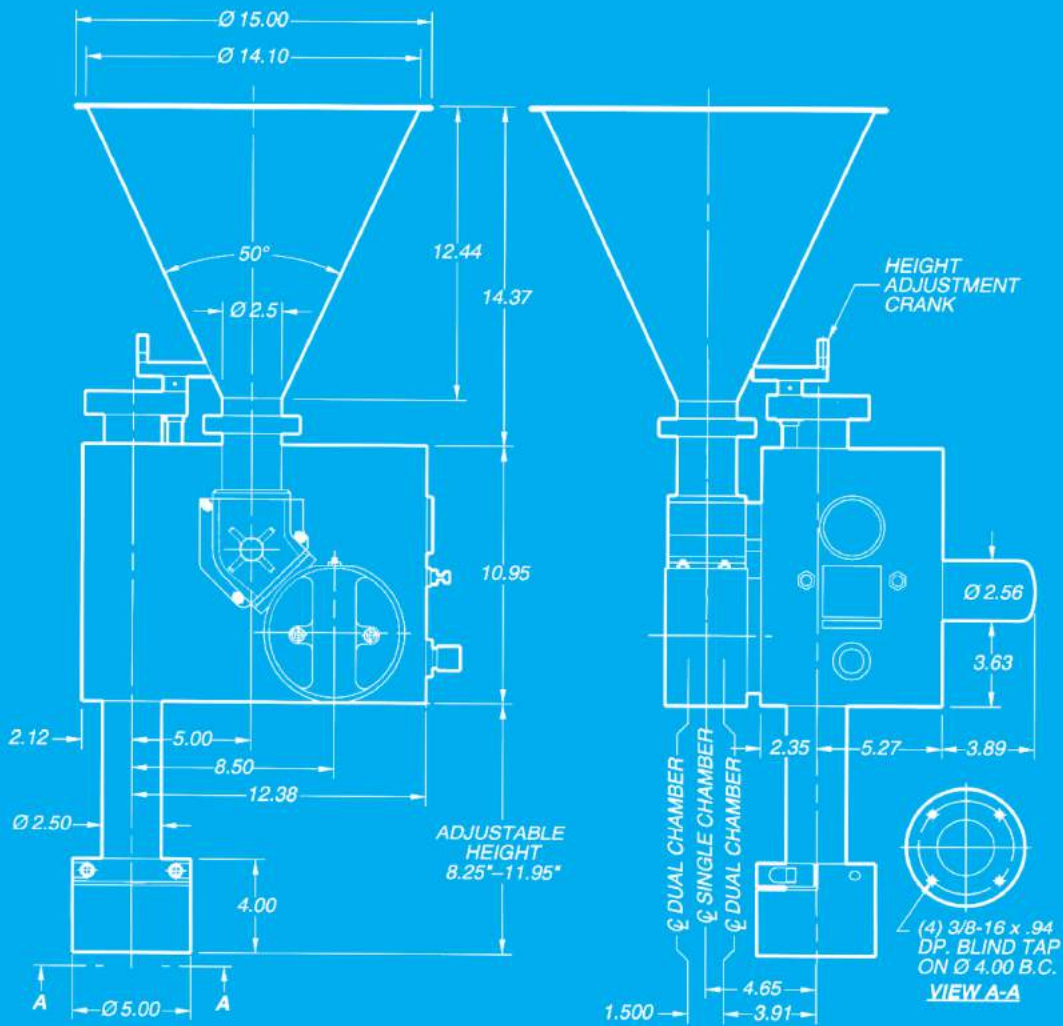
Tooling

Single chamber and dual chamber shuttle disks are offered in bores sizes ranging from Ø3/16" to 1-5/8" I.D.

Product Evaluation

FREE factory product evaluation is offered.

Please request a "Product Submittal Checklist" before submitting any product for evaluation.



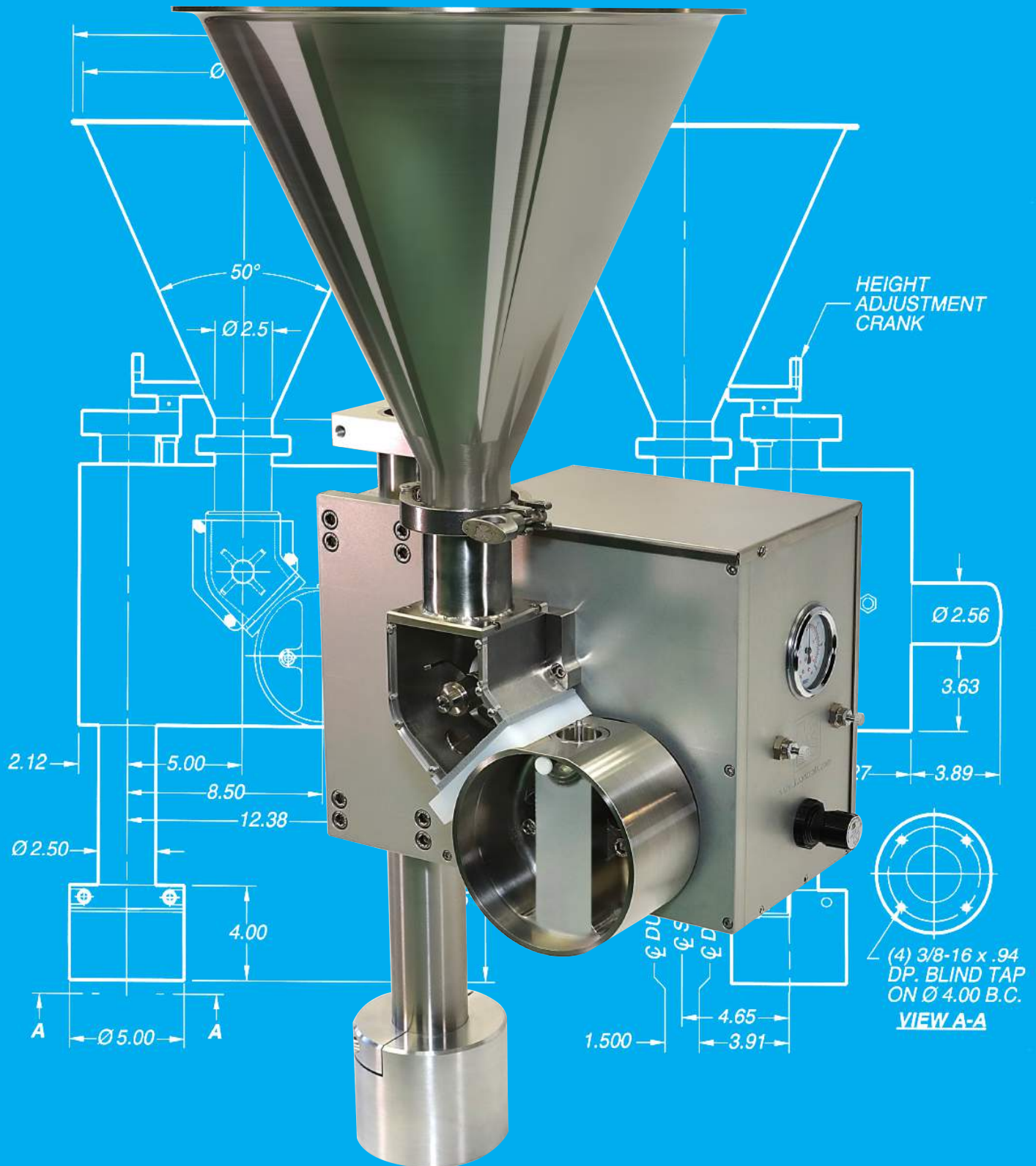


Kinematics & Controls Corporation

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Model 5500/MO

Modular Powder Filling System... Designed for systems integrators.



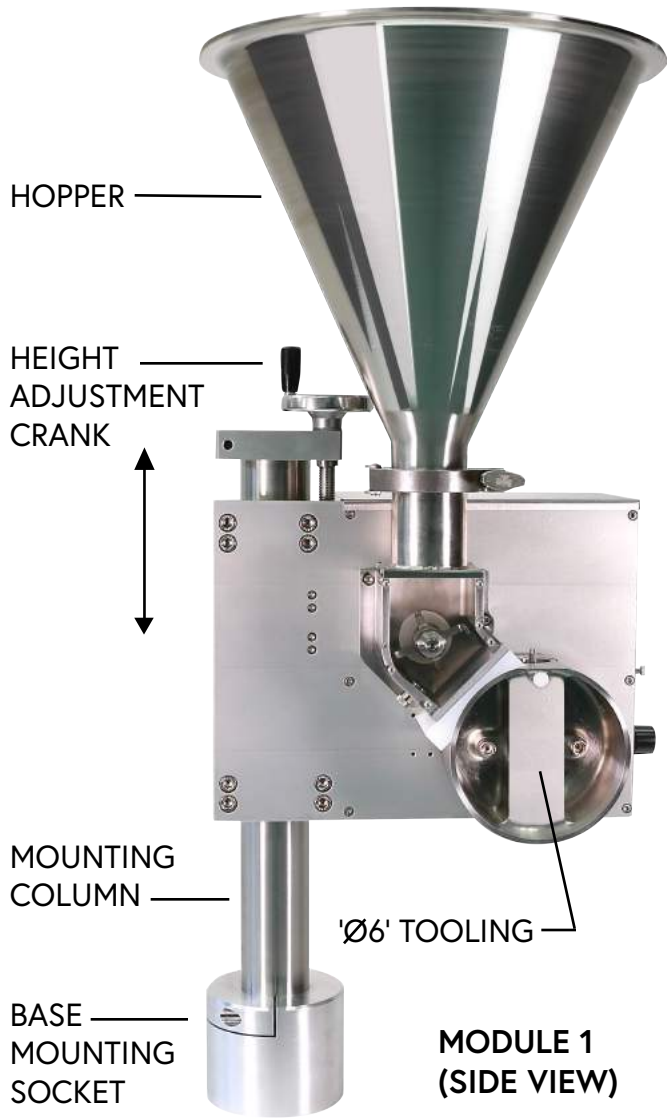
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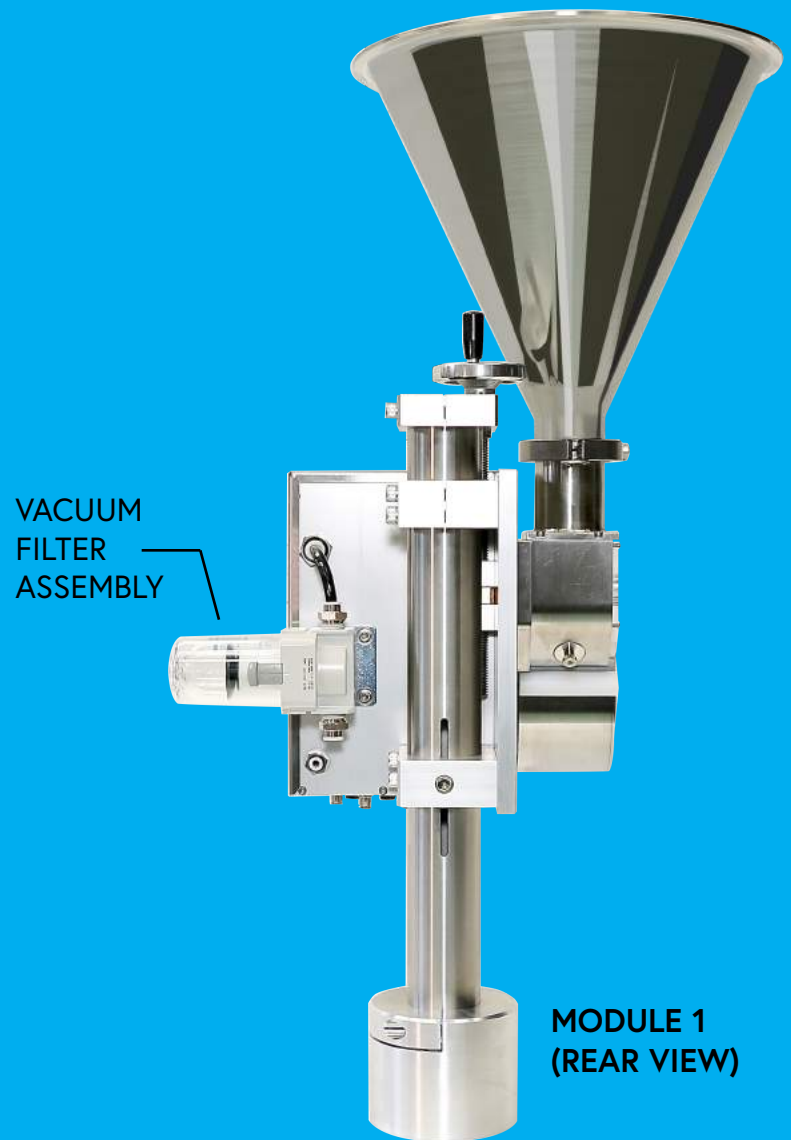
Kinematics' Model 5500/MO, modular powder filling system was designed to provide a simple, turn-key solution for machine builders who need to integrate a precision, small-dose powder filling station into a larger, fully featured, custom automatic packaging line.

The complete 5500/MO system comprises three (3) plug-and-play modules



**MODULE 1
(SIDE VIEW)**

elements that are necessary to deliver the powder into the receiving containers. This module comprises a completely enclosed electro-mechanical rotary actuator, a solid-state actuator driver and the shuttle disk tooling that provides the actual delivery means for the powder. The bulk product hopper sits atop the agitator box which houses the agitator mechanism and its gearmotor drive.



**MODULE 1
(REAR VIEW)**

1. The Powder Delivery Mechanism Module.

This mechanism is the only one of the three (3) system modules which is intended for mounting atop the deck of the host machine. It is designed such that its powder delivery chambers can be cantilevered directly over the container path of the host machine. Its size is minimalized to include only the functional

The housing also encloses the essential pneumatic lines required to deliver vacuum and positive-pressure, dose air to the tooling. A vacuum filter assembly, flow controls, a pressure relief valve, a compound gage assembly, internal wiring and the electrical receptacles needed for outside cable connection to the internal wiring completes the package.