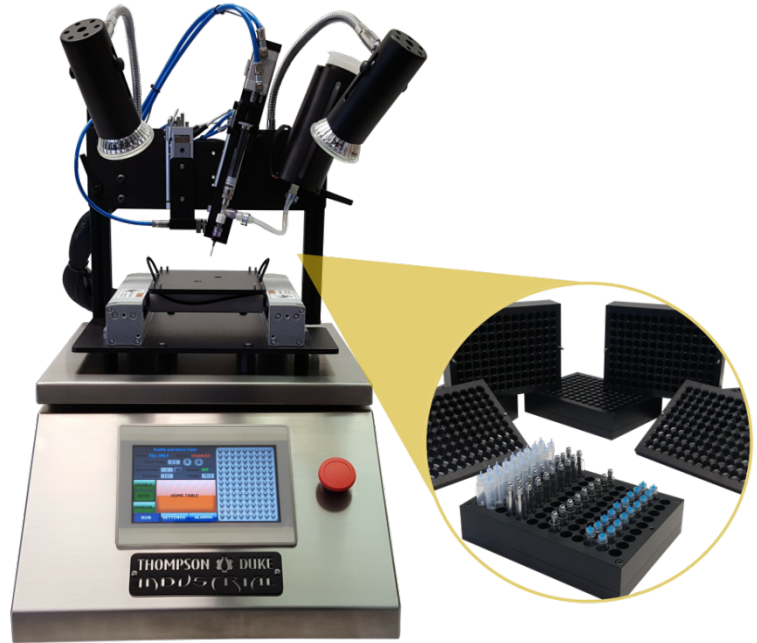


THOMPSON DUKE INDUSTRIAL

2020 SE 7th Avenue, Suite 200 • Portland, OR 97214
503-847-5088 • thompsonduke.com

ACF1 AUTOMATIC VAPORIZER FILLING MACHINE



SYSTEM DESCRIPTION

The Patented ACF1 Automatic Vaporizer Filling Machine is designed and built by expert American automation engineers in Portland, Oregon, USA (United States Patent No. 10,440,989). The ACF1 is designed for use with the vast majority of oils, cartridges and PODs on the market.

- The dispense assembly can be easily oriented to an angle mount for post-style glass cartridges
- The cartridge tray accommodates 117 cartridges and is designed to be very flexible for filling nearly all cartridge and POD form factors
- The volumetric oil dispense system can be quickly adjusted to fill any volume up to 1ml
- Automatic digital temperature control
- Dispenses high viscosity oils without using a pressure pot
- Heated Oil Delivery System and Product Reservoir up to 200F (93C)
- The 140ml heated oil reservoir can be filled dynamically during operation
- The intuitive color touch screen controls are designed for operators
- System tuning parameters are controlled via the touch screen to optimize efficiency, with displays for cartridge tray status and real time diagnostic alarms.
- Laboratory grade, replaceable components. Switch between oils in under a minute
- Less than 1 ml loss during product changeover
- Integrated pressure regulator and air filter
- Portable benchtop design with adjustable height
- Aluminum construction with stainless steel enclosure



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POWER AND FILTERED COMPRESSED CONTROL AIR REQUIREMENTS

The ACF1 requires a 120Vac outlet with a 10 amp branch circuit for system power, and requires at least 50 psi of filtered compressed control air for the linear actuators. The ACF1 system includes a pressure regulator and an air filter with a quick-disconnect male plug mounted on the rear of the enclosure for connection to your compressed control air system.

CARTRIDGE FORM FACTOR, TRAY SPECIFICATION AND SAMPLES

Our trays are designed to accommodate most cartridges and PODs on the market. If required, we will design custom CNC machined cartridge trays and guides to accommodate your specific cartridges.

SYSTEM COST

The cost for the ACF1 Automatic Vaporizer Cartridge Filling Machine System is identified in the following table. Costs for shipping vary based on the location of your facility and sales tax will be added to the total system cost if applicable. The first ACF1 procurement requires on-site startup and training with one of our engineers to optimize setup, performance and efficiency. These services cost about \$2800 to \$3500, depending on the facility location, and we'll spend the day with the operations staff, usually filling several hundred cartridges. Startup services are not required for subsequent ACF1 purchases. All prices are subject to change without notice.

Item	Quantity	Unit Cost
ACF1 Automatic Vaporizer Cartridge Filling Machine System	1	\$25,000.00
• Cartridge Tray (p/n 6009)	2	Included
• Glass Dispense Syringe (p/n 3019)	2	Included
• Reservoir Tube (p/n 3001)	2	Included
• Heat Lamp Bulb (p/n 3012)	3	Included
• Luer Caps (p/n 3069)	15	Included
• Wrench Set (p/n 5010)	1	Included
• ACF1 Dispense System Component Kit	1	Included
➤ Tube Assemblies (p/n 3006)	15	Included
➤ Stainless Steel Check Valves (p/n 6046)	2	Included
➤ Needles (p/n 3007)	45	Included



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OPTIONAL COMPONENTS

Most clients request additional components with the ACF1 system order. Additional trays are most often requested. All optional components are identified in the following table, and some can be purchased through our website.

Item	Quantity	Unit Cost
ACF1 Tubing Assemblies (p/n 4058)	1	\$60.00
Cartridge Tray (p/n 6009)	1	\$200.00
POD Tray (p/n 6009P)	1	\$300.00
Cartridge Tray Guide (p/n 6009G)	1	\$175.00
Glass Dispense Syringe (p/n 3019)	1	\$137.00
Stainless Steel Check Valve	1	\$300.00
Heat Lamp Bulb, 50 Watt Halogen (p/n 3012)	1	\$24.00
140mL Glass Product Reservoir (p/n 3001)	1	\$125.00

SYSTEM VERIFICATION, SHIPPING, START UP AND ACCEPTANCE

We perform complete pre-operational testing of each ACF1 in our Portland facility. Shipping costs are determined by your location and schedule. Startup and training services are essential for your first ACF1 purchase and the cost for these services are determined by your location. System acceptance will be achieved upon your beneficial use of the ACF1.

PAYMENT TERMS

We require 50% down payment for the ACF1 prior to executing the system build. The remaining balance of 50% is due prior to the shipment of the ACF1 and optional components. Payment by credit card requires a 4% fee.

SCHEDULE AND AVAILABILITY

The assembly and testing of the ACF1 is normally complete within six weeks. However, we usually have the ACF1 in stock, or have systems in a build state with availability within a few weeks.

WARRANTY AND SUPPORT

The ACF1 has a one year warranty and we provide phone support for the lifetime of the machine.

ACF1 DATA ACQUISITION AND HISTORIAN SYSTEM

Thompson Duke Industrial offers a computer workstation based Data Acquisition and Historian system for single or multiple ACF1 Filling Machines. The ACF-DA System permanently stores a record for all ACF1 Automatic Filling Machine system process parameters and control variables each time any cartridge or POD is filled. The system includes a computer workstation, all necessary network hardware and Thompson Duke Industrial software for connecting up to seven ACF1 machines via a standard Ethernet network. Production reporting is included to easily retrieve summary data such as oil batch number, fill rate (cartridges per hour) total quantity of cartridge fills and total oil volume processed on a daily and batch basis.

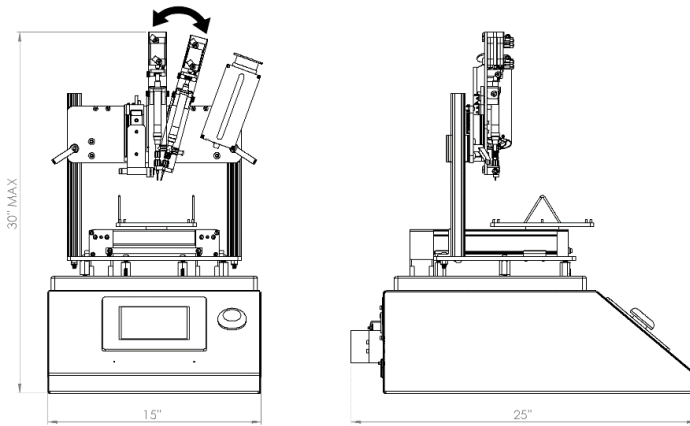


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ACF1 Automatic Cartridge Filling Machine

The ACF1 Automatic Cartridge Filling Machine is designed for both large and small scale filling operations. Flexible tray design supports most cartridges on the market and will not constrain the user to a particular cartridge. Precise volumetric filling adjustability and powerful pneumatic controls dispense high viscosity oil.



- Quickly adjust the angle of the oil delivery system for center-post cartridges
- Custom cartridge trays designed for use with different cartridge form factors
- The oil dispense system can be quickly adjusted to fill any volume up to 1ml
- Supports high viscosity oils
- Less than 1ml product loss during product changeover
- 140ml heated oil reservoir can be filled during operation
- Intuitive color touch screen controls are designed for easy operation
- System displays for cartridge tray status and real time diagnostic alarms
- Laboratory grade, replaceable components make switching between products quick and simple
- Integrated pressure regulator
- Portable benchtop design with adjustable height
- Aluminum construction and stainless steel enclosure

Height	30" MAX
Width	15.5"
Depth	24"
Weight	65 LBS
Ambient Temperature	0-45 C (32-113 F)
Reservoir Capacity	140mL
Temperature Range of Reservoir	0-93 C (0 - 200 F)
Working Voltage	120VAC 60Hz Single Phase 3 Prong Outlet Required
Power Consumption	400W
Working Minimum Pneumatic Pressure	40 PSI*
Pneumatic Fitting Connection	Industrial ¼" Male
Fill Rate for Post Style Cartridges, 1mL Volume	3-15 Seconds Per Cartridge**
Number of Cartridges Per Tray	117
Max Cartridge Height	5.25"
Standard Cartridge Diameter	0.472" (11.9mm)***
Product Loss	<1g

*Air compressor sold separately; Use ANSI/ISA-7.0.01-1996 Quality Standard for Instrument Air.

**Cartridge fill times will vary based on product viscosity.

***Please contact sales@thompsonduke.com to discuss larger cartridges.