Dispense Solutions

Fully Automated Standard Dispensers

**Multi-Formula, Many Ingredient Dispenser**
This type of Dispenser involves complex formulations which are typical of Paint Formulation, Paint Tinting, Ink Formulation, Dyes, Stains, Varnishes, Chemical Compounding, Flavorings and Lab Formula Creation. These applications require the dispenser to support a wide range of ingredients, a large amount of formulas and various feedstock options for the ingredient supply. Our Volumetrix Dispenser can handle up to 60 ingredients with an unlimited amount of formulas. This dispenser includes a Full function Graphic interface with a Formula editor and dispense database included.

**Single-Formula, Many Ingredient Dispenser**
In some applications, the dispenser only needs to repeat the same formula continuously. While this type of dispenser can have many ingredients, a single formula usually requires no more than 10 ingredients. A common applications for this type of dispenser is Toll Blending and Chemical Batch Production. Our Formula 1 dispenser can handle up to 10 ingredients and comes with a simple to use Operator Control panel.

**Single-Formula, Ratio (Proportioning)**
A common application in industry, is the requirement to Ratio (proportion) ingredients together, real-time in the proper ratio. These types of applications typically involve some type of “catalyst” which is proportioned with a base ingredient. Adhesives for laminators in the Flex pack industry, or catalyzed paint are a couple of common uses. Our RMix dispenser can real-time ratio a formula of up to 8 ingredients through a unique Active Mixer assembly.

**Filling Smaller Containers from larger product holding tanks**
The mission for this type of dispenser is to simply fill containers with liquid. Our Filling Station dispenser line is designed to handle the task with various automatic and semi-automatic systems. This system can handle from 1 to 10 liquid circuits and can dispense into container sizes from quart, gallon, drum and totes.
Dispense Solutions

Fluid Delivery Systems (Semi-Automatic Dispenser Equipment)

Recirculation, Pumping, Valve Control and Dispense Nozzle Assemblies
Electric Driven Pump Train systems for fluid recirculation and delivery to batching or production applications. We also supply valves, manifolds, Valve station consoles, Canister Ingredient Wings, and Dispense Nozzle Stations, scale and weight displacement encoder options and interfaces for these systems. Various combinations of this equipment can produce fully automatic or semi-automatic batching operations.

Custom Industrial Dispensers

Custom Combinations of our Dispenser equipment and technologies can be combined and integrated with Robots, Conveyors, Lid, and Labeling equipment to meet any possible production batching line application.
Dispense Solutions

Design and Performance Considerations

This guide provides an overview of common dispenser technology issues and illustrates the many advantages and benefits of the Generic Fluid Systems line of dispensers.

- Fast, accurate, dependable dispense with our servo-style gear pump, high-resolution controls, proprietary-dispense valve, automatic calibration, and multi-mode, simultaneous dispense capability.
- Easy operation with our configurable point-and-click Graphical User Interface, Formula Editor, automatic calibration, bulk-feed capability, level tracking, and multi-lingual capability.
- Flexible production with our wide viscosity, multi-batch size, and multi-material capabilities, and with our X-proof C1/D1 design.
- A high level of material hygiene with our stainless steel design, recirculation system, conical-supply canisters, and leak-proof top.
- Easy maintenance with our compact, modular design that still has plenty of space to access all components, with sanitary clamp-style fittings, and with our maintenance warning system.

Issue - Accurate Dispensing, Measuring Ingredients.

A scale used as a measuring device, especially with the gravimetric method, must have sufficient resolution to obtain the desired accuracy. Gravimetric machines are often advertised with 0.1 gram accuracy, however, most 55-gallon drum scales have a resolution of +/- 50 grams. A scale is never truly accurate during the dispense because the force from the pumping system is transmitted to the scale, as is the weight of the material, causing the scale to read “heavier.” Our competitors typically address this problem using a software algorithm in the controller to look ahead or “guess” the weight while dispensing. In addition, multi-step dispensing processes are used with a staged valve for full, medium and fine flow, as follows:

1. Full flow for the first 80%
2. Stop and wait for the scale to “settle” (to get the true weight)
3. Medium flow for the next 15%
4. Stop and wait for the scale to “settle” (to get the true weight)
5. Fine flow for the last 5%
6. Stop and check the scale (to get the true weight) to pulse in that last amount. That’s six steps!

Our Solution

Generic Fluid Systems uses a unique Weight Displacement Encoder that is not immersed in the wet material. A single “reference” is provided for all pumps in the system, much like a scale. The Weight Displacement Encoder tracks the weight for each individual ingredient, even when they are all dispensed at the same time! The encoder can also be
combined with optional scales for dual-reference checks for each batch. This high-accuracy, real-time device allows for flexible methods of dispense with all of our machines. That’s one step!

**Issue - Methods of Dispense: Gravimetric, Volumetric, Ratio and Priority.**

*Gravimetric* method dispenses one ingredient at a time onto a scale until all ingredients in the formula are added.

*Volumetric* method dispenses all ingredients at the same time, which is much faster dispensing than a gravimetric machine.

*Ratio or proportioning* dispenses are common when a catalyst is involved in the formula, such as lamination adhesives and multi-component paints. With this method, formulas do not require stirring or agitation after being dispensed.

*Priority Mode* dispenses are useful when bases or inert portions of the formula are dispensed first and then checked for weight compliance, followed by the addition and weight-compliance check of active ingredients.

**Our Solution**
Our equipment line is capable of all methods of dispense: Gravimetric, Volumetric, Ratio, Priority and combinations of the above.

**Issue - Accurate Dispensing, Pumping the Liquid.**

Fluid delivery must be smooth and repeatable, without pulsation for any system to be consistently accurate. Pneumatic-diaphragm pumps, which are typically used with gravimetric machines, produce pulsations with each pump stroke, so design and installation of equipment such as pulse dampeners and back-pressure regulators are often needed. This can be further aggravated when a wide variety of material viscosities are pumped, since each material will have unique pressure and surge characteristics.

**Our Solution**
Generic Fluid Systems’ Volumetric and Ratio machines typically use electric motor-driven positive-displacement pumps that produce smooth, repeatable fluid delivery.

Our Pump Drive Train system uses a single motor/gearbox coupled with a Weight Displacement Encoder to drive multiple pumps. This single motor and encoder combination provides the most reliable, repeatable, and accurate fluid delivery system for all these types of applications.
**Issue - Safe Dispensing in Hazardous (Explosive and Flammable) Environments.**

Many solvent-based materials require that dispenser equipment meet National Electric Code compliance for Class 1/Division 1 (explosive) atmospheres. Many vendors purge the enclosures of their water-based equipment to achieve compliance, however, purged enclosures are a maintenance nightmare since all power must be off when the enclosure is opened.

**Our Solution**
Based on our vast experience designing for solvent compatibility and hazardous environments, our equipment uses explosion-proof or intrinsically-safe electronics and does not require purged enclosures.

**Issue - Effective Dispensing. Feed Stock Options.**

Most vendors do not provide options for ingredient feed methods to your dispenser, typically relying on the customer to supply 55-gallon drums to each dispense pump.

**Our Solution**
Generic Fluid Systems’ line of dispensers features multiple feed stock options:

- Feed direct from 55-gallon drum.
- Feed from remote recirculation mother tote pumping systems using our Bulk Tap option.
- Feed from internal, canister wings supplied by Generic Fluid Systems, which contain various combinations of three or six gallon canisters. This allows smaller amounts to be loaded into the dispenser, typically from one or five gallon cans.
- Gravity Feed from Day Tank/Tote combinations.

**Issue - Effective Dispensing. Dispense Batch Sizes.**

Dispenser equipment typically comes configured to output one batch size, for example, 55-gallon drums. Need something smaller for production? Tough, hand mix it.

**Our Solution**
Our dispensers can output into container sizes ranging from a pint to large chemical totes. The dispensers can output in US gallons, US Quarts, Liters, Pounds, Grams, or Kilograms.
**Issue - Fast Dispensing, Need for Speed.**

Does your process have time (and thus money) to waste? Obviously, the faster one attempts to dispense a formula, the more challenging the accuracy component becomes. Gravimetric and volumetric dispenser machines address speed of dispense in different ways. Since a volumetric machine dispenses all ingredients at the same time, it is inherently much faster than the gravimetric method. This advantage becomes even larger in formulations that have many ingredients.

**Our Solution**

Our dispensers can be switched on the fly from gravimetric to volumetric dispense modes. So no matter how much time you have to waste (or not waste), we can accommodate your process.

**Issue - Effective Dispensing, Ease of Operation.**

Our competitors’ dispenser equipment often requires setting many calibration and dispense factors in a software interface to handle various viscosities, pump rates, container sizes, valve anticipator settings, etc.

**Our Solution**

Generic Fluid Systems dispensers are “one button” fully automatic. All factors are automatically set for you by the controller.

**Issue - Effective Dispensing, Serviceability.**

Most vendors cram all the components into the smallest spaces and provide electrical drawings, BOMs and user manuals which are at best poorly detailed or at the worst non-existent.

**Our Solution**

We design equipment with easy access to components and utilize common industrial standard fittings, tubing, and simple to understand mechanics.

Generic Fluid Systems provides fully detailed electrical, pneumatic, and component assembly drawings as well as thorough user manuals and troubleshooting guides. In addition, we provide parts and onsite service for our equipment.