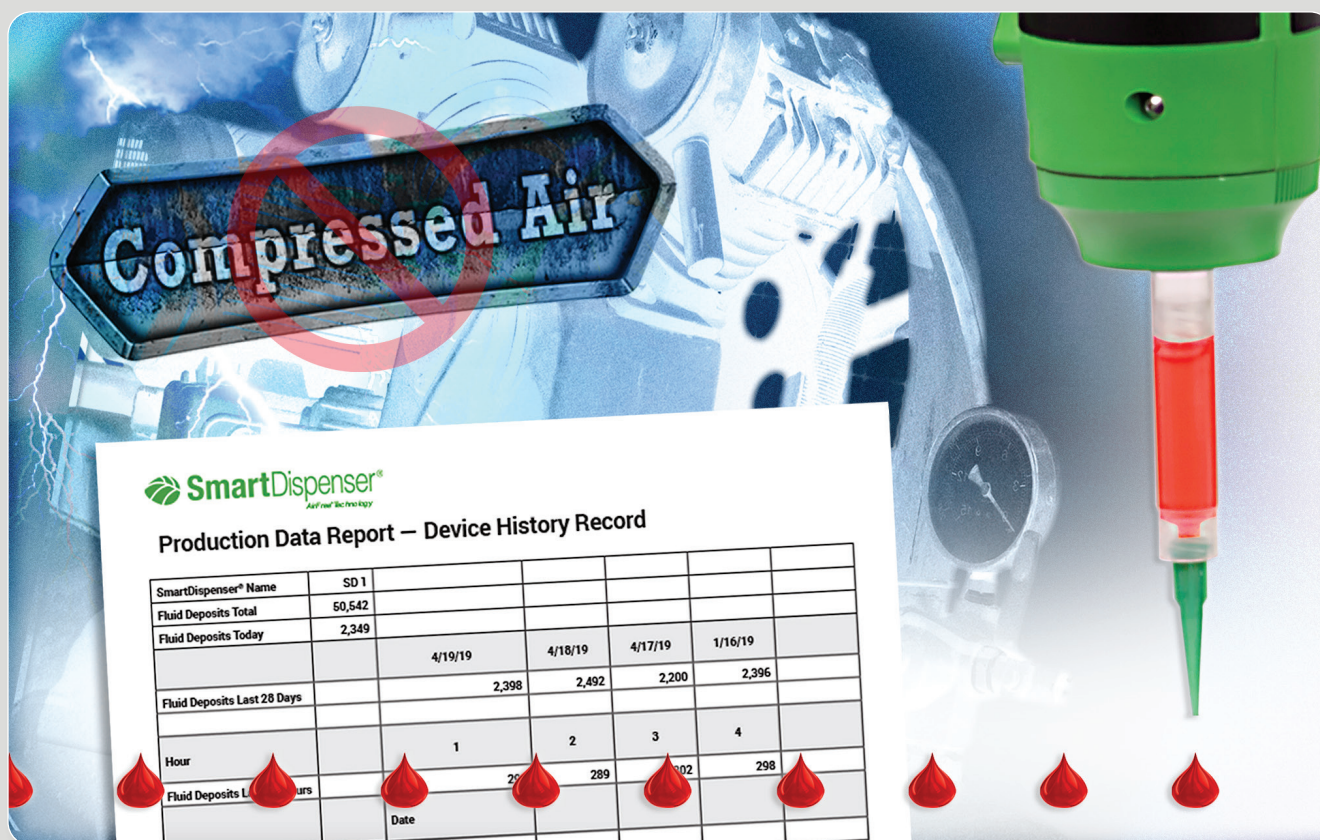


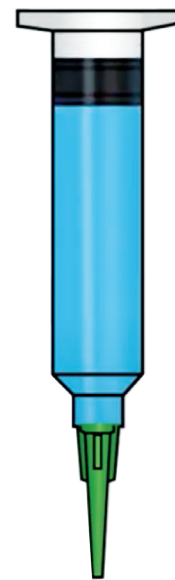
To ensure greater profitability, manufacturers need fluid dispensers that deliver precision, control and data

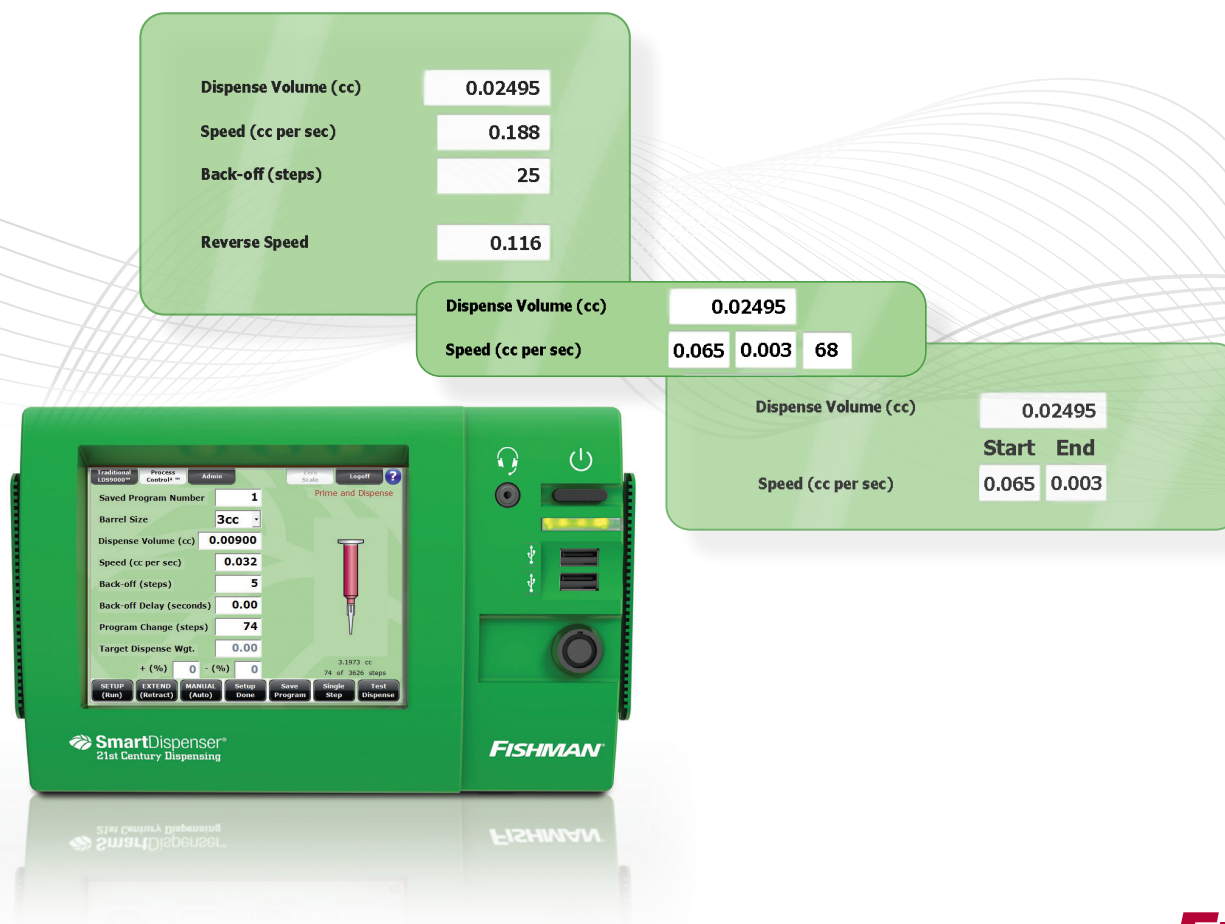


Fluid dispensers relying on compressed air—an unstable and unpredictable gas—as the mechanism to deliver adhesives have been in service since the 1970s. At the outset, they were adequate because many of the applications they were used for did not require high levels of precision and control. An even more restrictive aspect of air driven fluid dispensers has been and continues to be that they lack the ability to collect and record important production data; information necessary to help operations run more efficiently. Today, fluid dispensers must be able to do all this and more. The only way manufacturers can be assured of getting precision, control and data is to turn to a solution that offers a technology centered on the utilization of algorithms.

AlgorithmicControl™ gives manufacturers much of what they need today

Fishman® Corporation acknowledged and adopted the power of algorithms over a decade ago, which led to the creation of a technology called AlgorithmicControl™. This unique advancement enables manufacturers to achieve optimum precision in fluid dispensing by giving them the ability to apply algorithms to a mechanical drive. Not only does it allow for the delivery of fluid deposits with the highest degree of repeatability, but AlgorithmicControl™ also makes adjustments straightforward because parameters such as fluid deposit size, speed, and reverse motion are numerical inputs instead of haphazard calculations. These capabilities help to mitigate the impact of an epoxy's changing viscosity on the fluid deposit volume, making workstation-to-workstation performance standardization possible.

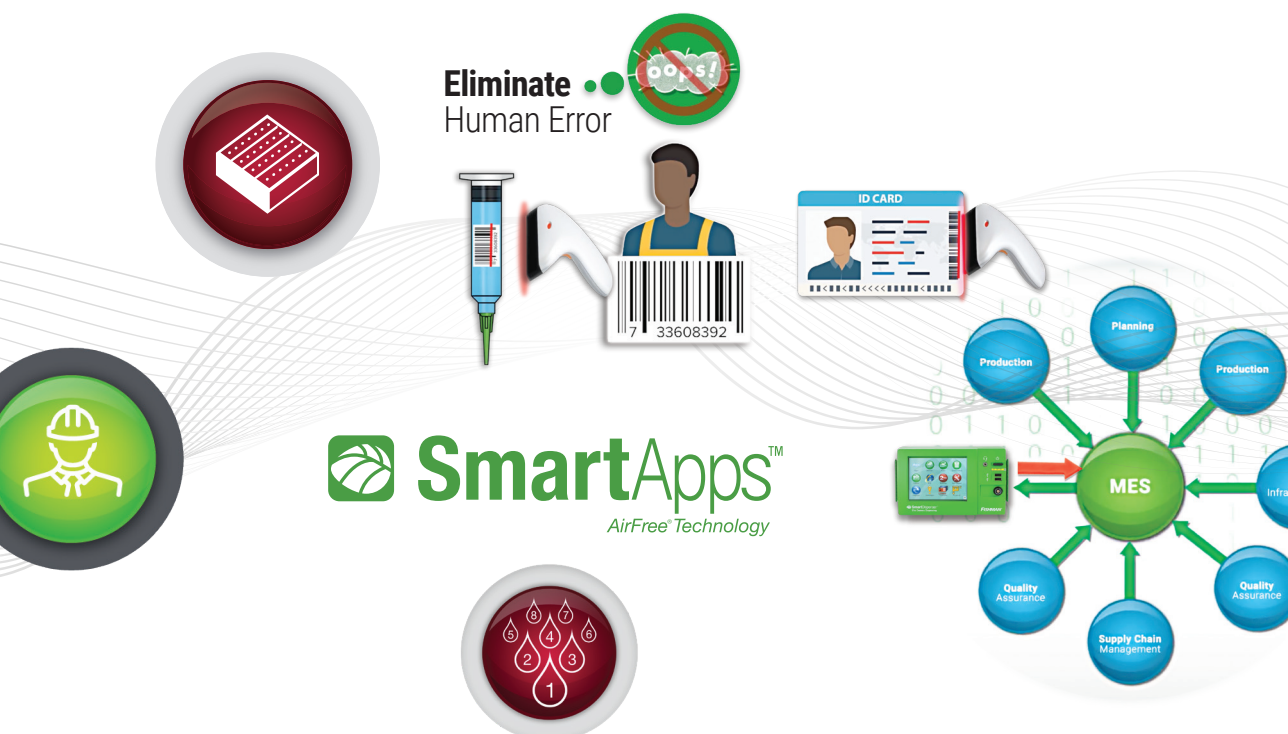


AlgorithmicControl™
 AirFree® Technology


AlgorithmicControl™ is bolstered by smart features built into AirFree® Technology

The success gained through the use of algorithms motivated Fishman® to push boundaries. Its efforts resulted in the development of AirFree® Technology; a platform on which manufacturers can add any number of smart features to help increase productivity, eliminate human error and enhance security. Some are built into the SmartDispenser® while others come in the form of over two dozen SmartApp™s; each consisting of sets of algorithms which, in some cases, have the capacity to collect and record the important data that populates the SmartDispenser®'s SQL database. Besides enabling the SmartDispenser® to report production data, the increased brainpower allows it to make decisions, reduce PLC programming, and establish machine-to-machine cross-communication between workstations and with MES systems. With the intelligence that AirFree® Technology and SmartApp™s provide, manufacturers can achieve far greater precision and control of the assembly process, reaping the rewards that come along with it.



AirFree® Technology


SmartDispenser®
 AirFree® Technology

Production Data Report – Device History Record

SmartDispenser® Name	SD 1		
Fluid Deposits Total	50,542		
Fluid Deposits Today	2,349		
Fluid Deposits Last 28 Days		4/16/19	4/18/19 4/17/19
		2,398	2,482 2,200
Hour		1	2 3
Fluid Deposits Last 24 Hours		299	289 300
		Date	
Dispense Program Used	PS	4/16/19	
	PS	4/17/19	
	PS	4/18/19	
	PS	4/19/19	
	ID	Name	Date Login Time
Operator 1	10	Chris Wallace	4/16/19 8:01:58 AM
Operator 2	14	Jimmy Hendrix	4/17/19 8:00:23 AM
Operator 3	16	Robert Plant	4/18/19 8:03:15 AM
Operator 4	22	Bobby Orr	4/19/19 8:02:23 AM
Raw Material Verification			Scan Time
Finished Product	854321		
Raw Material	43267	Correct	8:05 AM
Raw Material	54789	Correct	10:15 AM
Raw Material	87459	Incorrect	1:05 PM
Raw Material	89851	Correct	1:10 PM
Adhesive Verification			Scan Time
Finished Product	854321		8:09 AM
Adhesive	387	Correct	8:09 AM
Adhesive	478	Incorrect	10:18 AM
Adhesive	387	Correct	10:21 AM

The SmartDispenser® makes history by recording device history

One of the smart capabilities that is part of the software in every SmartDispenser® is the Device History Record feature. It allows manufacturers to automatically collect and record much of the valuable production data created during each workday.

It functions in this manner: at midnight of each workday, the SmartDispenser® takes production data, and places it in a Device History Record that is created in an Excel CSV format and stored on a hard drive. The Device History Record can be accessed through an icon on the dispenser's home screen, which can be opened and saved to a USB memory stick. Not only that, but because the report is machine-generated, there is zero chance for human manipulation or error.

The production data that is recorded and put into reports, includes:

- ▶ **The name of the SmartDispenser®;**
 - » Like a PC, each SmartDispenser® lets the production manager use a name specific to the customer
- ▶ **The Total Fluid Deposits for the life of the system;**
 - » This running tally is similar to the miles driven in a car or truck that get recorded onto the odometer
- ▶ **The Total Fluid Deposits for each day, as well as the Total Fluid Deposits in the last 24-hour period; and**
- ▶ **The Dispense Program used on any given day.**



Production Data Report – Device History Record

SmartDispenser® Name	SD 1					
Fluid Deposits Total	50,542					
Fluid Deposits Today	2,349					
		4/19/19	4/18/19	4/17/19	1/16/19	
Fluid Deposits Last 28 Days		2,398	2,492	2,200	2,396	
Hour		1	2	3	4	
Fluid Deposits Last 24 Hours		299	289	302	298	
		Date				
Dispense Program Used	PS	4/16/19				
	PS	4/17/19				
	PS	4/18/19				
	PS	4/19/19				
	ID	Name	Date	Login Time	Logoff Time	Trained
Operator 1	10	Chris Wallace	4/16/19	8:01:58 AM	4:59:04 PM	Approved
Operator 2	14	Jimmy Hendrix	4/17/19	8:00:23 AM	4:58:45 PM	Rejected
Operator 3	16	Robert Plant	4/18/19	8:03:15 AM	5:01:34 PM	Approved
Operator 4	22	Bobby Oar	4/19/19	8:02:23 AM	4:49:54 PM	Approved
Raw Material Verification				Scan Time	Date	
Finished Product	854321					
Raw Material		43297	Correct	8:05 AM	4/19/19	
Raw Material		54789	Correct	10:15 AM	4/19/19	
Raw Material		87459	Incorrect	1:05 PM	4/19/19	
Raw Material		88555	Correct	1:10 PM	4/19/19	



This data can help manufacturers in a great number of ways

The data that goes into the report can be used for workstation-to-workstation performance reviews and for cost accounting at the point of fluid dispense. Moreover, should any quality rejections occur, having this type of data will provide critical information to help production managers diagnose what went wrong with each workstation, and give management a clearer picture of things, making it easier for all stakeholders to take appropriate action. Information at this granular level is also a big benefit for complying with FDA validation protocols. Plus, all this data can be imported to an Excel spreadsheet for further analysis. PLCs cannot come close to providing this degree of detail since the only data they offer is comprised of counts or cycles.

► **Additionally, each SmartDispenser® can automatically email the Device History Record to the production manager at the end of each workday;**

- » To facilitate this, an email address can be inputted in the Admin section of the home screen. Because the SmartDispenser® runs on the Windows operating system, it functions just like any table or laptop PC, and, as such, it can be connected to a secure local sever with the same safety protocols used on any system running on Windows.

Reporting and export capabilities advanced by SmartApp™s

Manufacturers also can select from a number of SmartApp™s, many of which are designed to expand the reporting and export capabilities of the SmartDispenser®. One of them is the [Auto Export Device History Record SmartApp™](#). When installed on the SmartDispenser, it gives the production manager the ability to insert a USB memory stick into the SmartDispenser®'s USB port, which permits it to automatically save the Device History Record to the memory stick. The Auto Export Device History Record SmartApp™ also gives the production manager the ability to quickly retrieve data from all the workstations involved as the first task performed each morning.

As additional [SmartApp™s](#) are installed on the SmartDispenser®, more new and useful information can be automatically added to the Device History Record. For example, installing the [Operator Name Login SmartApp™](#) on the SmartDispenser®, allows each operator's name, and login and logoff times—all critical data—to be collected and added to the Device History Record.



SmartApps™
 AirFree® Technology


SmartDispenser®
AirFree® Technology

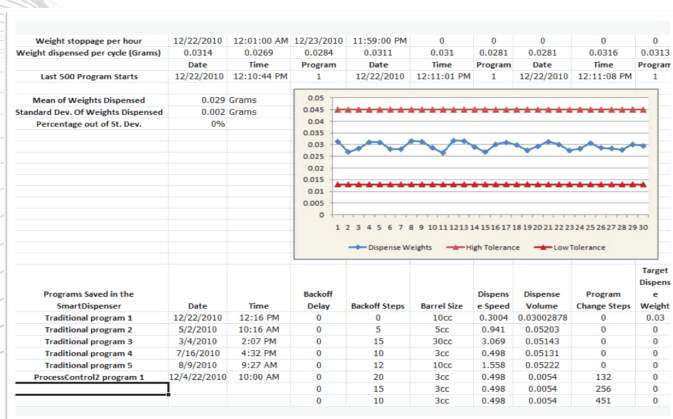
Production Data Report -- Device History Record

SmartDispenser® Name	SP-1				
Final Dispense Total	65,842				
Final Dispense Today	2,349				
Final Dispense Last 28 Days		4/18/19	4/18/19	4/17/19	1/18/19
		3,398	2,450	3,200	2,395
Hour		1	2	3	4
Final Dispense Last 24 Hours		299	299	302	298
Dispense Program Used	PS	4/17/19			
	PS	4/17/19			
	PS	4/17/19			
	PS	4/17/19			
ID	Name	Date	Login Time	Logout Time	Yrskd
Operator 1	10 Chris Wallace	4/17/19	8:01:58 AM	4:50:04 PM	Approved
Operator 2	14 Jimmy Hendrix	4/17/19	8:00:23 AM	4:58:45 PM	Rejected
Operator 3	16 Robert Plant	4/17/19	8:01:15 AM	5:01:34 PM	Approved
Operator 4	22 Abby Lee	4/17/19	8:00:23 AM	4:48:04 PM	Approved



An abundance of vital documentation is at hand with the SmartDispenser®

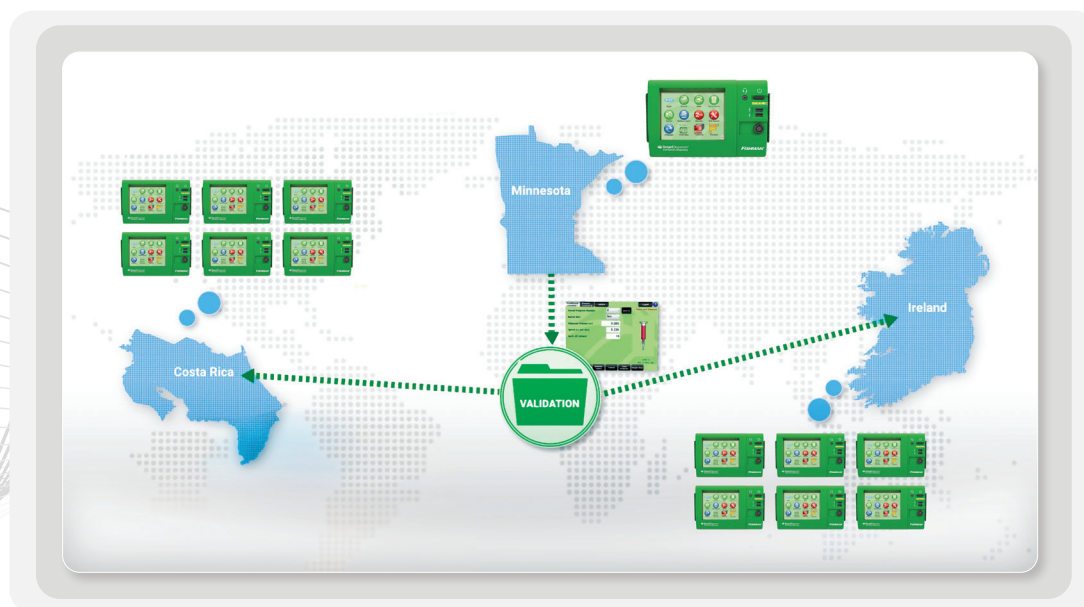
Almost any manufacturer can benefit from the SmartDispenser®'s Device History Record feature, as they can from the many other smart features and SmartApp™'s offered by Fishman®. After all, most have ISO9000 standards they must meet to remain certified. In the case of Medical Device Manufacturers, they have stringent FDA validation criteria they must comply with to avoid fines and possible litigation. With the amount of documentation that the SmartDispenser® generates and the ease in which it can be collected and reviewed, manufacturers are able to quickly determine where and how any failures occurred, allowing these issues to be readily and properly resolved.



Makers of Medical Devices have special requirements that the SmartDispenser® is well equipped to handle

One at the top of most lists is the need for exact performance workstation-to-workstation. The SmartDispenser® makes it possible in the following ways:

- ▶ **A SmartDispenser® in Hopkinton, MA (the location of Fishman®'s headquarters) will perform exactly as a SmartDispenser® in use at the location of a customer, if set-up is the same.**
 - » Tech Service offered by Fishman® improves SmartDispenser® performance further, should a manufacturer have an issue. Fishman® Tech Service can set up a system with the manufacturer's program parameters and recreate the issue in Hopkinton, MA. Once it is replicated, Fishman® technicians can make adjustments to resolve the issue, and then send the new program via email to the manufacturer's location, allowing them to get back on line as quickly as possible.
- ▶ **Furthermore, SmartDispenser® validation results determined in one location can be duplicated exactly when production is transferred to another site, with and on multiple SmartDispenser®s.**
 - » This way, only one work instruction is needed workstation-to-workstation, factory-to-factory, and country-to-country.
- ▶ **This permits validation to happen twice as fast, drastically reducing the costs associated with it. Validate one SmartDispenser®, load the program on the remaining SmartDispenser®s and validation is completed quickly, up and down the line.**
 - » With the unstable and unpredictable nature of compressed air, each outdated fluid dispenser has to be validated, sometimes with the use of a scale, and with multiple program adjustments having to be made as the syringe empties. This creates a nightmare for validation technicians and a great expense for manufacturers.
- ▶ **With the automatic nature of the SmartDispenser®, a dramatic reduction in human error is also assured. It is widely accepted that 75% of efforts made by Medical Device Manufacturers are focused on reducing human error, this reality makes the SmartDispenser® an ideal choice for this industry sector, as well as for companies manufacturing products of most any type.**



Precision, control and data are only the beginning with the SmartDispenser®

More than sixty years of dispensing innovation has put Fishman® Corporation in an enviable position; one that allows it to offer customers technological advancements no other fluid dispenser can. One such innovation is the fact that as new versions of AirFree® Technology are released, the SmartDispenser® can be easily and safely updated with the latest enhancements via a local USB memory stick. In addition, with an array of SmartApp™s to choose from, manufacturers can customize their SmartDispenser®s to enhance their specific process. All of this assures that the original investment made in the SmartDispenser® is never lost because as a customer's production needs evolve, the SmartDispenser® can keep pace, making it the most flexible fluid dispensing system available today.



For more information on how the SmartDispenser® with AlgorithmicControl™ and AirFree® Technology is able to deliver the precision, control and data essential for manufacturers today, please visit fishmancorp.com