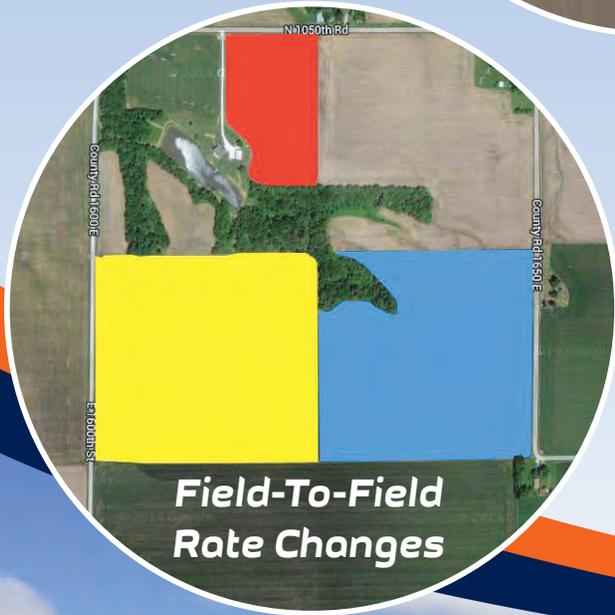
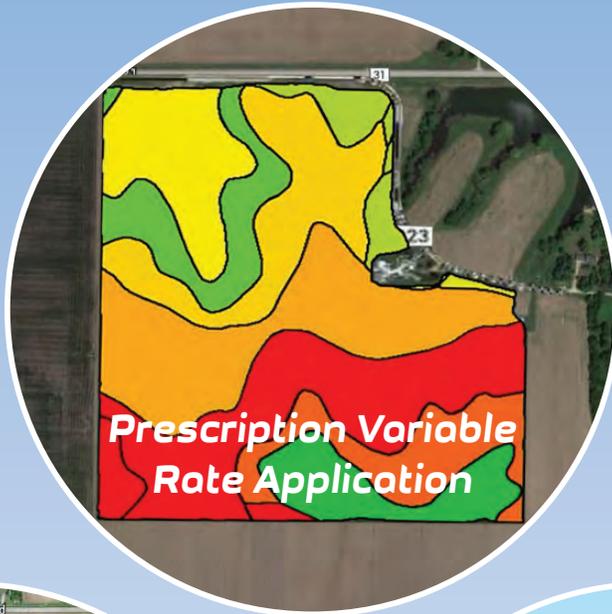


LIQUISHIFT®

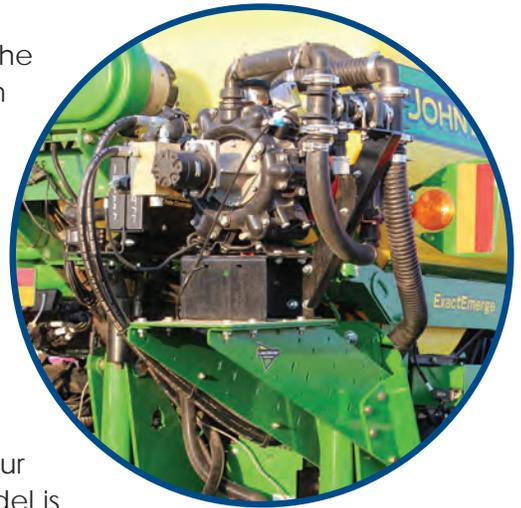
Variable Rate Technology



10-50 GPA is no problem for LiquiShift®

LiquiShift® Variable Rate Technology provides the ability to achieve the widest range of on-the-go rate changes of any application system available. SureFire's LiquiShift® will allow for a flow increase of 6-8 times the minimum flow rate the system is configured for. In a scenario with a minimum rate of 10 GPA at 4 MPH, the maximum rate at 6 MPH would be 40-50 GPA (6-8 times the minimum rate).

LiquiShift® works in conjunction with a SureFire PumpRight liquid application system. PumpRight systems utilize a diaphragm pump with PWM variable speed hydraulic motor control. Joined with the industry leading SureFire E-Mag flow meter technology, this results in the most accurate and reliable system for applying fertilizer on your implement. PumpRight is available in four models. The correct model is selected to meet your application scenario.



PumpRight

LiquiShift® with PumpRight is compatible with the following controllers:

John Deere Rate Control | Trimble Field IQ | Ag Leader Direct Command | Case AFS AccuControl | AI120/TopCon X30 with Working Set Master Module

LiquiShift® is fully compatible with the auto-section/swath control feature of your control platform. It is offered in single (whole implement operated as one section) or in multiple section configurations from 2-6 sections.

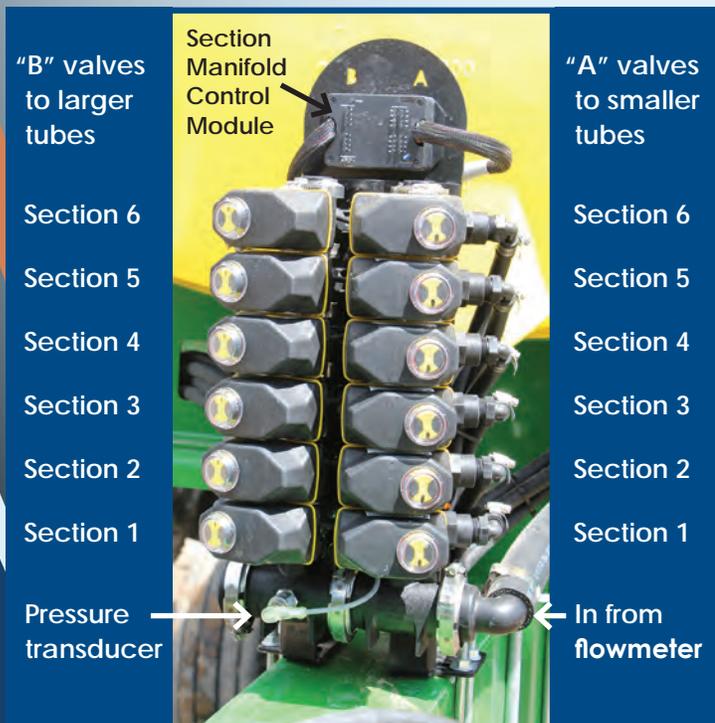


How it works

LiquiShift® is patent pending technology from SureFire Ag that utilizes two valves for each section and two metering tubes for each row. When the system initiates operation the "A" valve connected to the smaller metering tube is opened. Fertilizer flows through this tube until increased flow through the tube results in system pressure of 70 PSI. At this point the "A" valve closes and the "B" valve, connected to the large metering tube, opens. The large passage way results in reduced pressure. As flow rate is increased and pressure rises to 70 PSI the "A" valve will re-open. Now the system is flowing through both valve "A" and "B".

Similarly as flow is decreased the LiquiShift® will "stage down" at 20 PSI. If both "A" and "B" valves are open and pressure drops to 20 PSI, the "A" valve will close. If pressure drops to 20 PSI with just the "B" open, the "B" valve will close and the "A" valve will open.

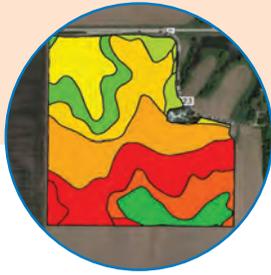
Metering Tube passage way diameter ranges from 0.080" - 0.187". Tube sizes are selected based upon the application requirements of your scenario. If the scenario changes over time, tube sizes can be changed.



Key Uses

Prescription Applications

Achieve your agronomic objectives without limitations. You will no longer narrow the range of your liquid prescriptions to get within the achievable range of a single orifice size. With 6-8 times flow capacity your agronomist is in the driver's seat. When the analysis calls for 8 GPA in low-productive or areas with high residual nutrients you will apply 8 GPA. When the analysis calls for 45 GPA in the high productive "black-soil" region of the field, you will apply 45 GPA. No longer will you be forced to over-apply in the poor performing areas.



Application Rate Changes from Field to Field

Never change another orifice. LiquiShift® utilizes metering tube to achieve uniform row-to-row accuracy and automatically switches between tubes to allow dramatic rate changes from field to field. Simply set the rate in your controller and LiquiShift® automatically chooses the proper metering tube.



High Speed Planters, Applicators, and Seeders

Faster application and/or planting speeds require larger flow ranges from your liquid application system. High-speed planters designed to work at 8-10 MPH impact fertilizer flow rates by a factor of 1.5-2. High-speed liquid applicators and side dress machines create a similar scenario. LiquiShift® is ideal for all of these high speed scenarios.



Components

LiquiShift® Control Module & Harness

Monitors the digital pressure transducer and determines whether valve "A", "B", or "A and B" should be open.

Manifold/Section Control Module

Communicates with the LiquiShift® control module and the rate controller to turn the correct section valves on/off.

Dual Metering Tube Assemblies

Metering Tube has a specified inside diameter ranging from 0.80"-0.187". Each tube is 8' in length. The tube creates restriction as liquid is pumped through it, resulting in equal flow through each tube. LiquiShift® utilizes two tubes (one smaller and one larger) per application row. Tubes sizes are selected based on the flow rate requirements of your scenario and assembled in braided mesh loom for easy installation and protection on the implement.

Flow Indicators (optional)

Flow from large and small metering tube is combined with a push-to-connect "Y" fitting and plumbed to a flow indicator. Following the flow indicator flow goes to the check valve and then to the point of application.

Application Point

LiquiShift® works with all different types of application devices. On planters it can be connected to 2x2 openers, in-furrow tubes, and surface placement "dribble tubes". In cases where a stream will be injected into the soil, a ¼" hose barb is used to increase the velocity of the stream.



THE LIQUISHIFT® ADVANTAGE

Variable Rate Technology

LiquiShift expands the available range of application compared with traditional orifices.

Row Spacing 30 inches

Maroon Orifice (0.052")

Rate (GPA)	Speed (MPH)						
	4	5	6	7	8	9	10
5	13	16	19	23	26	29	32
10	26	32	39	45	52	58	65
15	39	48	58	68	78	87	97
20	52	65	78	91	103	116	129
25	65	81	97	113	129	145	162
30	78	97	116	136	155	175	194
35	91	113	136	158	181	204	226
40	103	129	155	181	207	233	259

Red Orifice (0.063")

Rate (GPA)	Speed (MPH)						
	4	5	6	7	8	9	10
5	13	16	19	23	26	29	32
10	26	32	39	45	52	58	65
15	39	48	58	68	78	87	97
20	52	65	78	91	103	116	129
25	65	81	97	113	129	145	162
30	78	97	116	136	155	175	194
35	91	113	136	158	181	204	226
40	103	129	155	181	207	233	259

Charts show oz/min/row

SureFire LiquiShift w/ Blue & Tan Tube s

Rate (GPA)	Speed (MPH)						
	4	5	6	7	8	9	10
3	8	10	12	14	16	17	19
5	13	16	19	23	26	29	32
10	26	32	39	45	52	58	65
15	39	48	58	68	78	87	97
20	52	65	78	91	103	116	129
25	65	81	97	113	129	145	162
30	78	97	116	136	155	175	194
35	91	113	136	158	181	204	226
40	103	129	155	181	207	233	259

SureFire LiquiShift w/ Green & Orange Tubes

Rate (GPA)	Speed (MPH)						
	4	5	6	7	8	9	10
3	8	10	12	14	16	17	19
5	13	16	19	23	26	29	32
10	26	32	39	45	52	58	65
15	39	48	58	68	78	87	97
20	52	65	78	91	103	116	129
25	65	81	97	113	129	145	162
30	78	97	116	136	155	175	194
35	91	113	136	158	181	204	226
40	103	129	155	181	207	233	259

Charts show oz/min/row

Notes:

- Range available with Mid Viscosity Product (most propriety In-furrow starter formulations or a 10-34-0/32-0-0 Blend)
- Additional low range available when using mid-high Viscosity Starter Blend
- Additional high range available when using Low Viscosity Nitrogen Fertilizer (32-0-0 or 28-0-0)



Don Rogers
Farmer, Rogers Farms, Wray, CO

"In the past our application equipment limited what we could do. Previously we would give our agronomy team a limited range we could work within. Now we let our agronomy team tell us what we need to apply and we are able to achieve that. With LiquiShift®, on the planter we applied prescriptions of 10-40 GPA and 10-50 GPA with the side dress machine."

Your Local SureFire Dealer

Customer Experience



PJ Hoehn
Crop Advisor, Simplot Grower Solutions, Morrill, NE

"In western NE we have some pretty difficult situations in our fields, with lots of variable conditions. We have a lot of tough spots in fields that we want to pinch the rates down. From an economic standpoint, we don't want to invest a lot of money in those areas, but at the same time we'll have zones with a 150 bushel/acre higher yield goal. With LiquiShift® we can pinch the poor zones to 5 GPA and still be able to achieve 30 GPA enabling us to hit the highest yield goals."

SureFire Ag Systems, Inc. | 9904 Hwy 25 | Atwood, KS
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