

Fertilizer Application

N-Ject™

Patented

For owners of anhydrous ammonia toolbars, Capstan Ag Systems, Inc. now offers True VARIABLE RATE Application Capability in an easy-to-install retrofit kit!



The VR Secret: New Manifold Technology Coupled with PWM Metering of Liquid NH₃

N-Ject uses a specially designed manifold that condenses, meters, and distributes anhydrous ammonia, without the use of a pump, flowmeter, cooler, regulating valve or special ammonia tank. N-Ject pulses high-speed solenoid valves to meter and distribute a 25:1 rate range of NH₃ evenly to each knife, regardless of terrain.



Now, any toolbar can easily be adapted to automatically apply a greater range of rates than previously thought possible.

N-Ject™ Is Compatible with Flowmeter-Based Electronic Rate Controllers

Most functions of the rate controller can be used with N-Ject. The toolbar can be divided into sections, and sections turned on and off to match various planter widths or reduce overlap. Field acre and product volume features can be used. Application rate can be manually changed on the go, or change automatically using a GPS system.



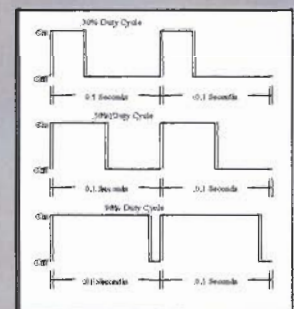
N-Ject's *two control modules*, encased in a black box, mount on the implement near the manifold. The *Flow Module* receives commands from the rate controller, and pulses the solenoid valves to the correct rate. The *Flowmeter module* receives signals from pressure and temperature sensors and sends the flow feedback to the rate controller. As the electronic rate controller requires more or less flow, it sends a signal to the *pulsing solenoids*, which increase or decrease the pulse duty cycle.



Flow Pulse



No Flow Pulse



Solenoid Duty Cycle

The N-Ject manifold is assembled by "stacking" solenoid valve sections together. Manifolds can be customized for any size implement. Larger implements use two manifolds

Map-based VARIABLE RATE fertilizer applications now have the technology to finally execute a wide range of application rates.

N-Ject™

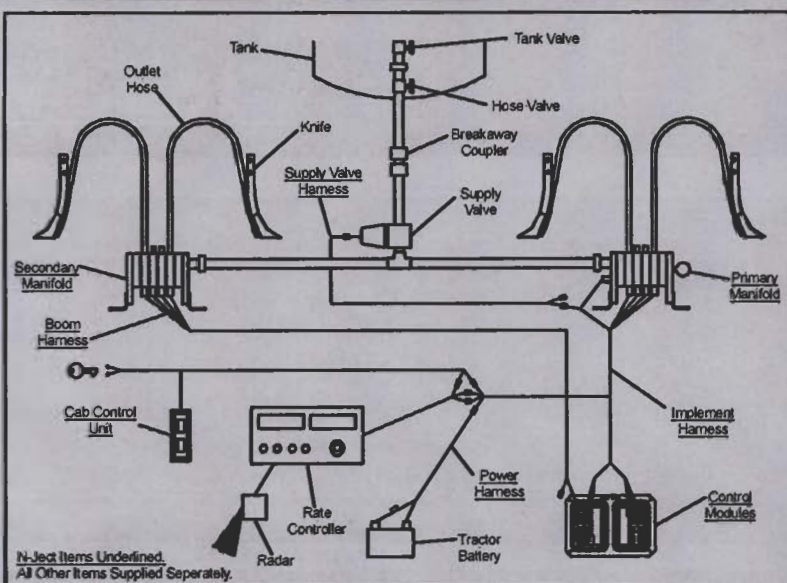
Convenient Cab Mounted Operator Controls

N-Ject cab control allows the operator to power up the N-Ject system, turn on/off the ammonia flow, and open/close the supply valve. Two lights indicate the status of the system:

- The *status light* flashes with the pulsing solenoid valves, and indicates with the system is active, if liquid is present in the manifold, and is an indication of the pulse range.
- The *supply light* indicates whether the supply valve is open or closed

N-Ject™ Was Designed As A Retrofit Installation

A two manifold installation schematic is shown below



What is the Application Capacity?

When N-Ject is installed with one shank per valve and 30" shank spacing, the chart below may be used to describe application rate ranges.

When 15" shank spacing is desired, two shanks may be fed from an N-Ject valve and the same chart values apply. When 15" shank spacing is used, and one shank per valve is used, the rate values in the chart are doubled.

N-Ject™ Provides a Dividend of Value

- **Uniform distribution across the toolbar**
N-Ject tests up to 6% COV along the toolbar even on sidehills.
- **Large Flow Control Range (see chart)**
- **Accurate Application Rate (Up to 2%)**
- **Fast response to rate changes**
- **Swath Width Control**
- **Potential input cost savings with map-driven variable rate applications**

When coupled with DGPS and a variable rate controller driven by mapped rate changes, the toolbar is fully capable of doing true variable rate application and reducing the rising cost of fertilizer.

- **No Special Tanks Required**
- **Fast Turn on and Turn Off**
- **Serial Diagnostic Port**
Allows a service computer to read the sensor signals, monitor the programming calculations, and read the signal to the rate controller.
- **Operates in Cold Temperature**
- **N-Serve® Compatible**

Application Rate Range, #N/Acre 30" Spacing with 5/32" Valve, N-Ject

PSI	3 mph	5 mph	7 mph	8 mph
50	40 to 402	24 to 241	17 to 172	16 to 151
70	47 to 471	28 to 282	20 to 202	17 to 177
100	55 to 555	33 to 333	23 to 238	20 to 208
120	60 to 602	36 to 361	25 to 258	22 to 226

How Can I Find Out More?

www.capstanag.com

A SUPPLY

81 E. Pine
Othello, WA 99344
1-800-634-2026

™ are