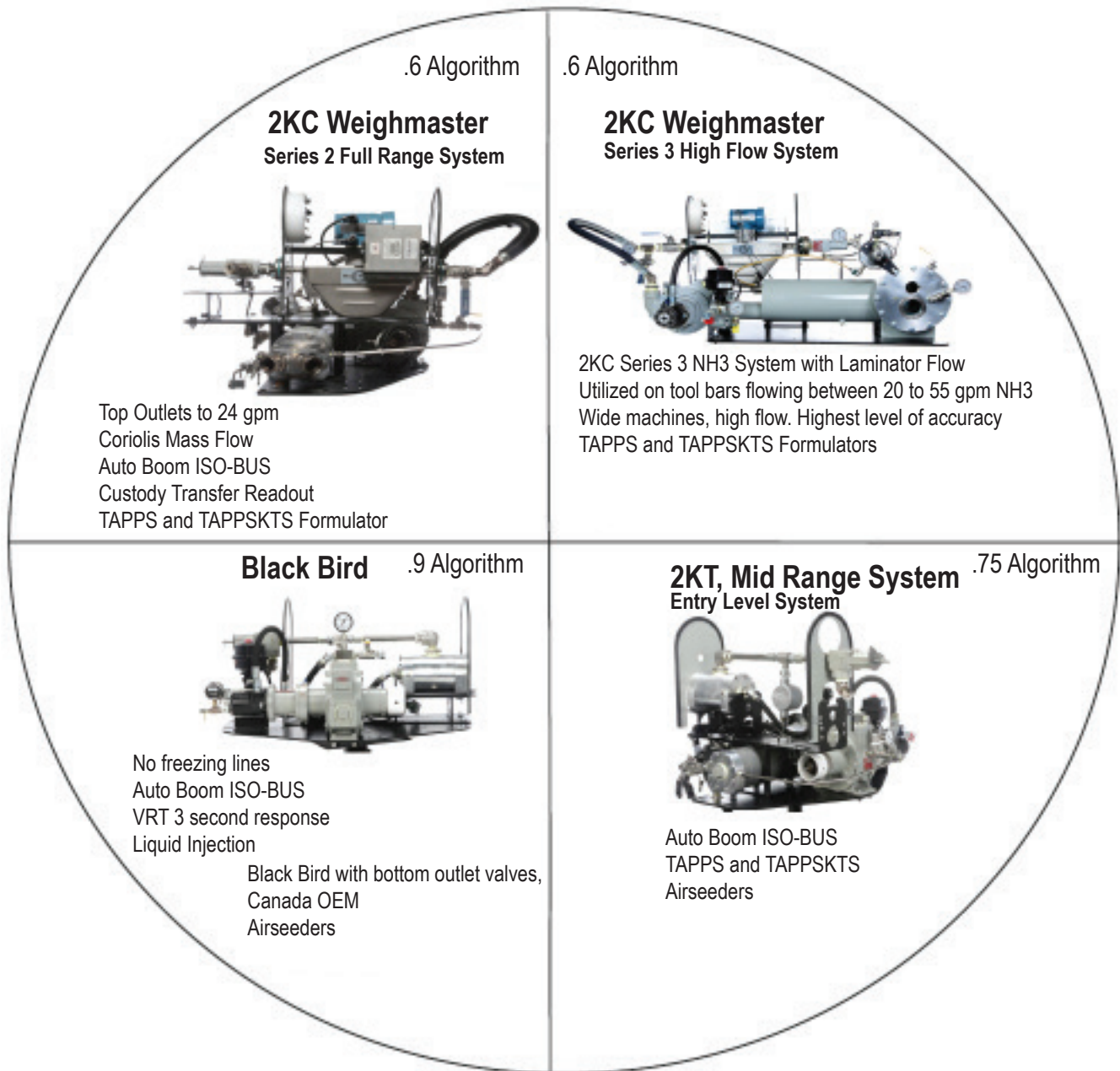


Technology at Work...



“Any sufficiently advanced technology is indistinguishable from magic.” Sir Arthur C. Clarke

Black Bird....

Designed for all controllers, ISO-Bus, 6 and 10 Auto Boom, with NPSH supply of NH3.
Or set up utilizing any NH3 manifold...and any NH3 Cooler and primary filter.

Applying 110% more crop available N.

Black Bird...Fast and Reliable delivery of NH3 to injection point without freezing.

Use your old controller, Use your old cooler, Use your old manifold, Use your old breakaway.

Black Bird is an introductory system for producers that require a lower cost system to start.

No freezing Injection Lines.

Black Bird is a Low cost system with impeccable credentials.....created by engineers of Exactrix.

Black Bird allows a future upgrade to Exactrix Weigh Master Series with a 166% more crop available N rating.

Durable corrugated line covers, numbered and sheath protected injection lines delivering NH3 in a liquid state to each opener.

Section Control 6 or 10 booms. Short line runs with 3/16 x .138 id lines for quick drain down.

Highly repeatable carbide bearing amplified volumetric flow meter in boom widths of 10 feet or less.

Low Flow repeatable system in VR-Site Specific from 2 mph to 7 mph.

ISO-Bus ECU allows all virtual terminals supplied by the tractor manufacturer.

Compatible with Mid-Tech, Dickey-john and Raven older controllers prior to Can-bus.

Fast VR response in cold weather. 3 seconds or less pressure change at the injection point.

Black Bird delivers additional tractor seat time with high system reliability and low 2.8 gpm hydraulic oil consumption.

Black Bird has many patented features of the more advanced Exactrix systems



1. Hydraulic Motor, 2.2 cu.in. (Eaton or Sauer Danfoss) at 2.38 to 3.38 gpm nominal hydraulic flow at pressure to 2600 psi.

2. Hydraulic Flow Control valve provides a 3 second response full turn at 0 to 5 gpm.

3. All Hydraulic hook ups are JIC Male with Color Coded and Name Tags.

Check Valve protected...No chance of hooking up the system backwards....the system initial run in is foolproof.

4. The Stainless Steel Great Plains Weather Shield protects the Flow meter and the ISO-Bus ECU and Auto Boom components.

5. The Corken Modulation Valve allows very low flows and provides a variable back pressure on the system.

The Corken Modulation Valve assures the flow meter is metering a liquid flow.

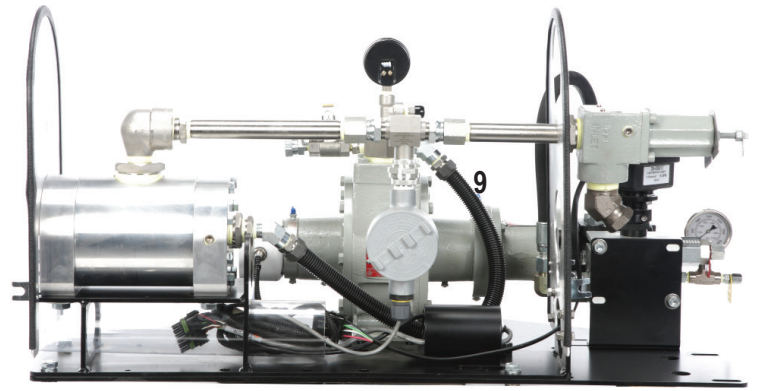
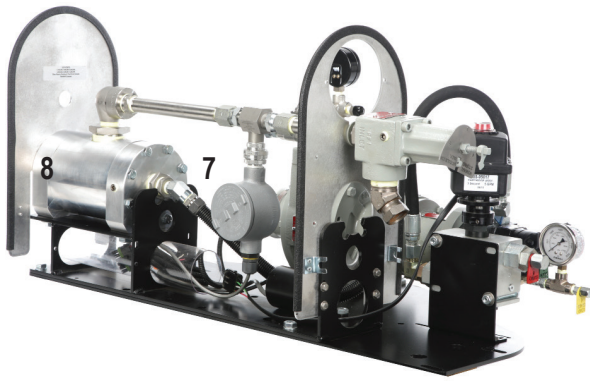
6. The Corken Sliding Vane Black Bird pump allows low hydraulic flow and delivers only liquid state NH3 at a predictable rpm.

The Corken Sliding Vane Black Bird pump allows flows to 21 gallons per minute at pressures to 350 psi, (150 psi above tank).

The Corken Black Bird pump is Underwriters Laboratories listed and produced by the world's largest compressed gas pump manufacturers.

The Corken Sliding Vane Black Bird Pump is rated to 65 gpm and is de-rated 3 times to assure long life with the highest quality components.

The Corken Sliding Vane Black Bird Pump can be stored with NH3 in the pump. No pump maintenance is required other than 1 grease application per year.



7. The $\frac{3}{4}$ flow meter is constructed entirely of stainless steel and uses carbide bearings for long life.

The $\frac{3}{4}$ flow meter regulates as low as 1.12 gallons per minute and will go as high as 21.75 gallons per minute in 3 seconds.

The $\frac{3}{4}$ flow meter is inductance type with an amplifier located right at the flow meter to assure a high quality signal to the controller.

8. All components after the 100 mesh final filter and before the $\frac{3}{4}$ flow meter are stainless steel high pressure fittings to assure very low to no maintenance of the flow meter.

The Black Bird Final filter is designed to handle very high, micro-second, pressure spikes (3,000 psi) from boom valves.

The Black Bird Final Filter housing wall thickness is 1 inch.

The final filter elements are re-useable and cleaned when internal pressure gauge gets too high.

The double backed filter element is silver soldered and sealed with double o-rings to avoid filter channeling.

The Black Bird Final filter catches and stores all particulate and rust (.006" dia.) that may pass from the pump towards the flow meter.

An optional large Final Filter ceramic magnet can be installed if low quality material or poor tanks are being supplied.

9. No replacement date hoses...pump outlet lines and manifold delivery lines are lifetime rated.

Manifold $\frac{3}{4}$ od lines are cut to length.

10. The Bypass Return back to tank allows the positive displacement pump to turn in the corners with low NH3 heating and improved pump life if the operator desires to set the Hydraulic Flow Control Valve at Hold.

The Bypass Return may be closed if the Hydraulic Flow Control Valve is moving to Close rather than Hold at shut down.

For cold morning start ups the Bypass Return can be fully opened to heat the NH3 tank supply for 30 minutes at full load (350 rpm at 150 psi boost.....also heating the hydraulic oil for 104 degree F operation requirements.

11. The Black hole manifold orifices are supplied in standard .035, .045, .055 and .080 with 1/8 inch nptf adapter ends.

The Black hole Terminal Injection Orifices are supplied in standard .045, .055 and .080 sizes.

The Opener Tube holders for the TIO's are supplied in simple configuration 3/8 inch tubing with compression fit up.

The Openers are removable and lines are joined with standard Black Bird Line splices.

12. A Powerful Tool...Only Corken Sliding Vane Black Bird Pumps provide the operator true relationships between supply and delivery of NH3 using a pump Tachometer.

The pump tachometer assures proper reporting of system health...allowing repeatable flow and delivery targets to be understood.

The pump tachometer provides valuable assistance in setting the modulation valve.

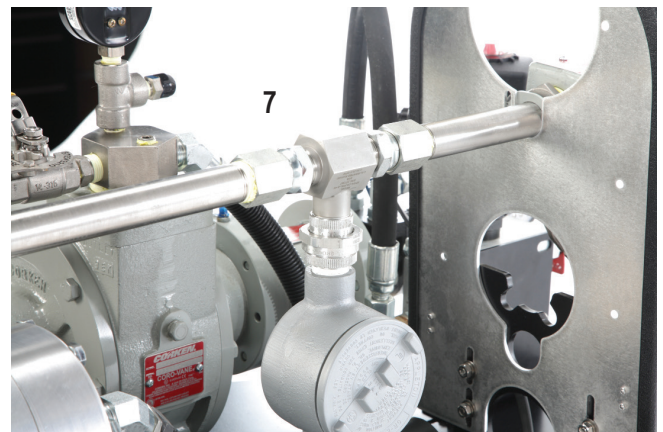
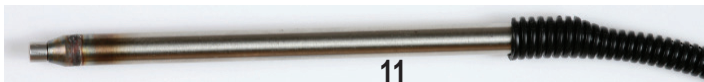
The pump tachometer allows easy monitoring of the Auto Boom start and stop of each section.

The pump tachometer is a double assurance that the VR, Site specific targets are being meet.

The pump tachometer monitors pump supply and poor or blocked NH3 tank valves.

The pump tachometer avoids over revving of the pump when the supply of NH3 is poor or the system is empty.

Each system is flow and pressure tested for 1 hour in a dynamic check of all system components.



Specifications.

Liquid NH3 Flow at 60 degrees F with Net Positive Suction Head

Maximum NH3 Flow above tank pressure.....21.75 gpm..... 91.57 lbs.N/min.

Nominal NH3 Flow above tank pressure.....17.75 gpm. 74.73 lbs.N/min.

Minimum NH3 Flow at tank pressure.....1.12 gpm..... 4.72 lbs.N/min.

Maximum hydraulic Flow at NH3 tank pressure.....5 gpm hyd. oil at 525 rpm.

Nominal hydraulic Flow at 74.73 lbs. N/M above tank pressure....2.38 to 3.38 gpm hyd. oil at 240 to 355 pump rpm.

Hydraulic Flow Control Valve, full travel, 3 seconds, controller setting Hold, or Close.

Tractor Hydraulic System, Pressure Compensated, Load Sense (Power Beyond) or SCV.

Hydraulic system pressure gauge, oil filled, 0 to 3000 psi.

Corken Sliding Vane pump, 2 inch nptf, Black Bird.....rated to 350 psi pressure, UL listing.

Pump flow characteristics. Phase Lock Loop closed...no NH3 bypass flow return back to tank.

Maximum Pump RPM, de-rated 3 times to 21.75 gpm.....525 rpm.

Normal operating pump RPM with Modulation valve set at 2 turns..... 240 to 355 rpm.

Non-functional operating range (pump cavitation)..... 425 to 525 rpm.

Maximum NH3 pressure above tank pressure (hyd. Limited).....150 psi plus tank pressure.

Pump Internal Bypass setting.....180 psi plus tank pressure

Maximum delivery, system design, Modulation valve set 0 turns.....21.75 gpm NH3 at 150 psi above tank pressure.

Minimum delivery, system design, Modulation valve set 4 turns.....1.12 gpm NH3 at 60 degrees F.

NH3 System Pressure, oil filled, 0-400 psi.

Flow meter, 3/4 inch nptf, 4 blade ss 304 turbine, with inductance brake, carbide bearings, and inductance amplified signal.

Turndown range at +- .005 repeatability..... 1.75 gpm to 17.5 gpm.

Pressure rated to..... 350 psi.

Full flow range response time at injection point..... is less than 3 seconds on all boom widths.

Stable at flows to 1.12 gpm with sectional boom control. Auto Boom mastered by the low flow repeatable 3/4 flow meter.

Black hole Orifices at Manifold. .035 .045, .055, .070, .080 1/8 inch nptf compatible with all manifolds.

Black hole Orifices at Injection. .045, .055, .080

TIO injection holders inside the opener, 3/8 x 6 inch stainless steel tubes with TIO holder.

Line Looms,

3/16 x .138 nylon sheathed with corrugated loom sleeve. Nominal band spacing of 14 inch or less.

1/4 x .190 nylon sheathed with corrugated loom sleeve. Nominal band spacing of 15 inch to 22 inch.

3/8 x .250 Polyethylene with corrugated loom sleeve. Nominal band spacing of 20 inch to 30 inch.

3/8 x .290 nylon sheathed with corrugated loom sleeve and high pressure fittings. Nominal band spacing 20 inch to 30 inch.

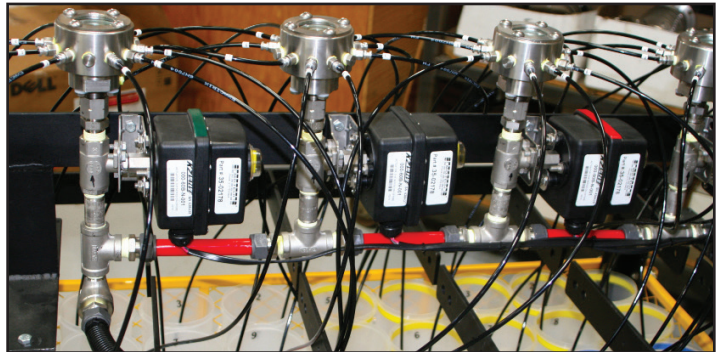
Controllers, tested and compatible with most controllers and virtual terminals

1. ISO-Bus Virtual Terminals complete with six section control or ten section control with Auto Boom.
2. Mid-Tech,
3. Dickey-john
4. Raven.

Pressure and Tachometer Optional based on controller capability.

Exactrix Pressure gauge panels are available in 8 readout 0 to 500 psi.

Tachometer Panel is utilized for 2 position readout of pump and air-seeder fan to 10,000 rpm.



Apply 125% to 133% more crop available N.Exactrix 2KT Turbine Flow System.

An Exactrix Mid-Range application liquid injection system at reduced cost using turbine flow meters.

Open Control System....Any Tractor Virtual Terminal ISO-Bus or Raven, Dickey-john, or Mid-Tech Control.

Auto Boom compatible with 6 or 10 section boom control.

Variable Rate rapid response of 3 seconds with low hydraulic flow of 3.5 gpm nominal.

Manifold Application CV of 1%.

Includes all components for complete system set up.

Looking Glass Manifolds with view window inspection of manifold ports.

Manifold internal port 50 mesh filter protection for additional tractor seat time at start up.

For Cold Weather, low pressure drop, Smarthose Breakaway tank hose with A-215L hose end valve.

The most advanced, 2KC Exactrix Phase Shifter 1.5 gallon with 3 x 18 inch primary filter, 100 mesh.

Vented openers have Make-up orifices to match opener flow requirement.

Quick manifold mounting with Exactrix cut to length manifold delivery lines with no replacement date, Red line. No replacement date cloth braid NH3 hose required.

Black hole orifices produce high uniformity at mid-range injection pressures.

Injection pressures to 175 psi above tank pressure to 350 psi.

No freezing Injection Lines are cut-to-length in four line capacities.

Exactrix 2KT turbine flow is a reduced cost system with stellar performance credentials

The Exactrix 2KT is 65% lower cost and upgradeable to 2KC.....created by engineers of Exactrix.

The Exactrix 2KT has an optional temperature compensated flow meter that improves system performance 7%.

The Exactrix 2KT allows a future upgrade to Exactrix Weigh Master Series with a 166% more crop available N rating.

Durable corrugated line covers, numbered and sheath protected injection lines delivering NH3 in a liquid state to each opener.

Section Control 6 or 10 booms. Short line runs with 3/16 x .138 id lines for quick drain down.

Highly repeatable carbide bearing amplified volumetric flow meter in boom widths of 10 feet or less.

Low Flow repeatable system in VR-Site Specific from 2 mph to 7 mph.

ISO-Bus ECU allows all virtual terminals supplied by the tractor manufacturer.

Compatible with Mid-Tech, Dickey-john and Raven older controllers prior to Can-bus.

Fast VR response in cold weather. 3 seconds or less pressure change at the injection point.

Exactrix 2KT delivers additional tractor seat time with high system reliability and two choices in hydraulic oil consumption.

Exactrix 2KT has many patented features of the more advanced Exactrix 2KC and 2KD Weighmaster systems.

Utilizes Exactrix Openers such as Bourgault MRB-Duplex or Triplex, Case SDX series 600E, Deere Exactrix Wing Injection 1890 and 1990, Deere 1895 Mid-Row Banding, Deere 2510, Yetter 2987,





A. Hydraulic Motor, 3.0 cu.in. (Eaton or Sauer Danfoss) at 3.1 to 4.4 gpm nominal hydraulic flow at pressure to 2600 psi.

1. Hydraulic Flow Control valve provides a 3 second response full turn at 0 to 6.5 gpm.

2. All Hydraulic hook ups are JIC Male with Color Code and Name Tags.

Check Valve protected...No chance of hooking up the system backwards....the system initial run in is foolproof.

3. The Stainless Steel Great Plains Weather Shield protects the Flow meter and the ISO-Bus ECU and Auto Boom components.

4. The Corken Modulation Valve allows very low flows and provides a variable back pressure on the system.

The Corken Modulation Valve assures the flow meter is metering a liquid flow.

5. The Corken Sliding Vane Exactrix pump allows low hydraulic flow and delivers only liquid state NH3 at a predictable rpm.

The Corken Sliding Vane Exactrix pump allows flows to 21 gallons per minute at pressures to 350 psi, (150 psi above tank).

The Corken Exactrix pump is Underwriters Laboratories listed and produced by the world's largest compressed gas pump manufacturers.

The Corken Sliding Vane Exactrix Pump is rated to 65 gpm and is de-rated 3 times to assure long life with the highest quality components.

The Corken Sliding Vane Exactrix Pump can be stored with NH3 in the pump. No pump maintenance is required other than 1 grease application per year.

6. The $\frac{3}{4}$ flow meter is constructed entirely of stainless steel and uses carbide bearings for long life.

The $\frac{3}{4}$ flow meter regulates as low as 1.12 gallons per minute and will go as high as 21.75 gallons per minute in 3 seconds.

The $\frac{3}{4}$ flow meter is inductance type with an amplifier located right at the flow meter to assure a high quality signal to the controller.

The $\frac{3}{4}$ flow meter is available with temperature compensation...automatically changes the bulk density based on temperature.

7. All Exactrix components after the 100 mesh final filter and before the $\frac{3}{4}$ flow meter are stainless steel high pressure fittings to assure very low to no maintenance of the flow meter annually.

The Exactrix Final filter is designed to handle very high, micro-second, pressure spikes (3,000 psi) from boom valves.

The Exactrix Final Filter housing wall thickness is 1 inch.

The Exactrix final filter elements are re-useable and cleaned when internal pressure gauge gets too high.

The Exactrix double backed filter element is silver soldered and sealed with double o-rings to avoid filter channeling.

The Exactrix Final filter catches and stores all particulate and rust (.006" dia.) that may pass from the pump towards the flow meter.

An optional large Final Filter ceramic magnet can be installed if low quality material or poor tanks are being supplied.

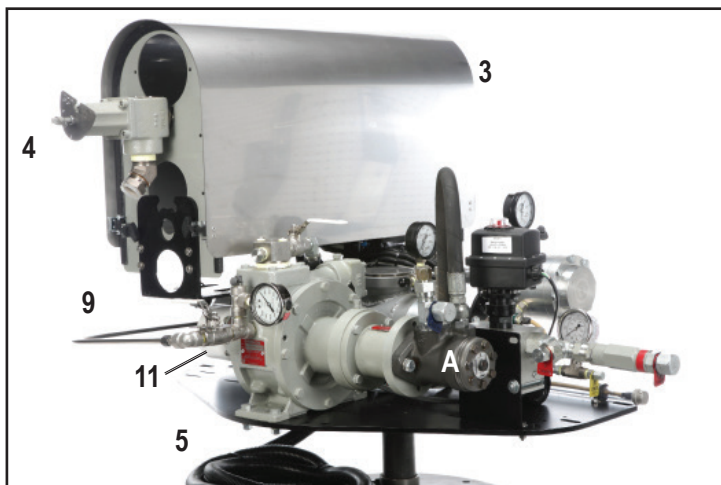
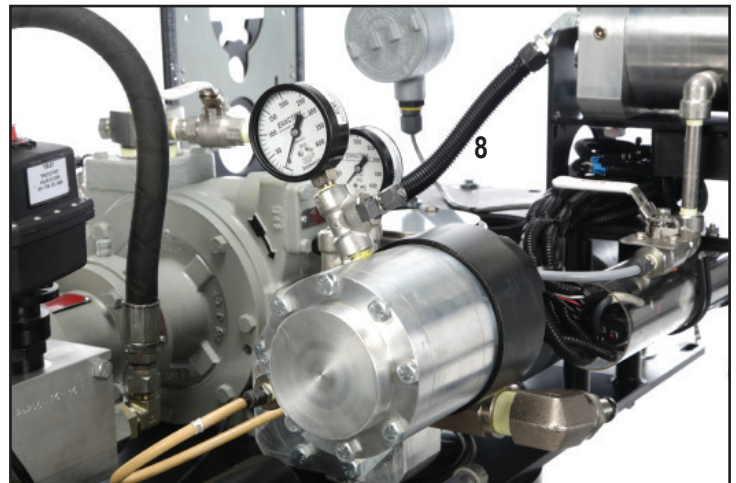
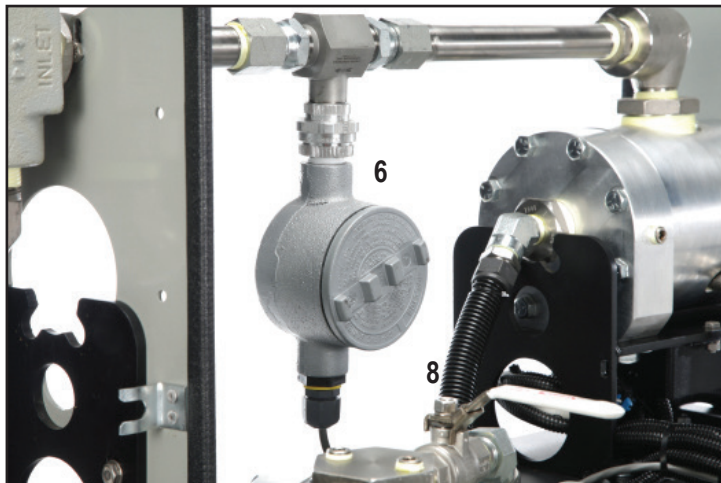
8. No replacement date hoses...pump outlet lines and manifold delivery lines are lifetime rated.
Manifold 3/4 od lines are cut to length allowing a much reduced system cost that is more reliable.

9. The Phase Locked Loop allows the pump to slip in the corners.
The Phase Locked Loop allows the pump to respond rapidly to variable rate changes.
The Phase Locked Loop allows Auto Boom to function more effectively by reducing pressure surges.

10. The Black hole manifold orifices are supplied in standard .035, .045, .055 and .080 with 1/8 inch nptf adapter ends.
The Black hole Terminal Injection Orifices are supplied in standard .045, .055 and .080 sizes.
The Opener Tube holders for the TIO's are supplied in simple configuration 3/8 inch tubing with compression fit up.
The Openers are removable and lines are joined with standard Exactrix Line splices.

11. A Powerful Tool...Only Corken Sliding Vane Exactrix Pumps provide the operator true relationships between supply and delivery of NH3 using a pump Tachometer.
The pump tachometer assures proper reporting of system health...allowing repeatable flow and delivery targets to be understood.
The pump tachometer provides valuable assistance in setting the modulation valve.
The pump tachometer allows easy monitoring of the Auto Boom start and stop of each section.
The pump tachometer is a double assurance that the VR, Site specific targets are being meet.
The pump tachometer monitors pump supply and poor or blocked NH3 tank valves.
The pump tachometer avoids over revving of the pump when the supply of NH3 is poor or the system is empty.

Each system is flow and pressure tested for 1 hour in a dynamic check of all system components.



2KT, Turbine Flow Systems.

Designed for all controllers, ISO-Bus, 6 and 10 section Auto Boom, Twin Top Outlet Tanks to 17 gallons per minute nominal. Up to 22 gallons per minute with ST, A-479R twin Top Outlet Tank Valves. Also bottom outlet valves.

Specifications.

Liquid NH₃ Flow at 60 degrees F with Net Positive Suction Head

Maximum NH ₃ Flow above tank pressure.....	21.75 gpm.....	91.57 lbs.N/min.
Nominal NH ₃ Flow above tank pressure.....	17.75 gpm.....	74.73 lbs.N/min.
Minimum NH ₃ Flow at tank pressure.....	1.12 gpm.....	4.72 lbs.N/min.

Maximum hydraulic Flow at NH₃ tank pressure.....6.5 gpm hyd. oil at 506 rpm with 2.97 cu.in motor
Nominal hydraulic Flow at 74.73 lbs. N/M above tank pressure.....3.1 to 4.4 gpm hyd. oil at 240 to 355 pump rpm.
Hydraulic Flow Control Valve, full travel, 3 seconds, controller setting Hold, or Close.
Tractor Hydraulic System, Pressure Compensated, Load Sense (Power Beyond) or SCV.
Hydraulic system pressure gauge, oil filled, 0 to 3000 psi.

Corken Sliding Vane pump, 2 inch nptf, Exactrix.....rated to 350 psi pressure, UL listing.
Pump flow characteristics. Phase Lock Loop closed...no NH₃ bypass flow around pump.
Maximum Pump RPM, is de-rated 3 times to 21.75 gpm.....506 rpm.
Normal operating pump RPM with Modulation valve set at 2 turns.....240 to 342 rpm.
Non-functional operating range (pump cavitation).....406 to 506 rpm.
Maximum NH₃ pressure above tank pressure (hyd. Limited).....175 psi plus tank pressure.
Pump Internal Bypass setting.....180 psi plus tank pressure
Maximum delivery, system design, Modulation valve set 0 turns.....21.75 gpm NH₃ at 175 psi above tank.
Minimum delivery, system design, Modulation valve set 4 turns.....1.12 gpm NH₃ at 60 degrees F.
NH₃ System Pressure, oil filled 2.5 inch gauge, 0-400 psi.

Flow meter, ¾ inch nptf, 4 blade ss 304 turbine, with inductance brake, carbide bearings, and inductance amplified signal.
Turndown range at +- .005 repeatability.....1.75 gpm to 17.5 gpm.
Pressure rated to.....350 psi.
VRT response time at injection point.....less than 3 seconds on all boom widths.
Flow meter stable at flows to 1.12 gpm with sectional boom control.
Auto Boom mastered by the low flow and highly repeatable 3/4 flow meter.
Temperature compensated ¾ flow meter,.....+/-1 degree F. Auto-Bulk Density Compensated.

Black hole Orifices at Manifold. .035 .045, .055, .070, .080 1/8 inch nptf
Black hole Orifices at Injection. .045, .055, .080
Looking Glass Manifold port outlet filters. 50 and 28 mesh.
TIO injection holders inside the opener, 3/8 x 6 inch stainless steel tubes with TIO holder.
Exactrix specialized openers.

Line Looms,

3/16 x .138 nylon sheathed with corrugated loom sleeve. Nominal band spacing of 14 inch or less or .260 gpm.
¼ x .190 nylon sheathed with corrugated loom sleeve. Nominal band spacing of 15 inch to 22 inch or .620 gpm.
3/8 x .250 Polyethylene with corrugated loom sleeve. Nominal band spacing of 20 inch to 30 inch or 1.41 gpm.
3/8 x .290 nylon sheathed with corrugated loom sleeve, ferrule fittings. Nominal band spacing 20 inch to 30 inch or 2 gpm.

Electronic Control Unit.

Located under the Great Plains Weather Shield.

ISO-Bus is easily adapted to control 2 and 3 products with ECU mounted under the Great Plains Weather Shield.

The Auto Boom Control Unit is mounted under the Great Plains Weather Shield.

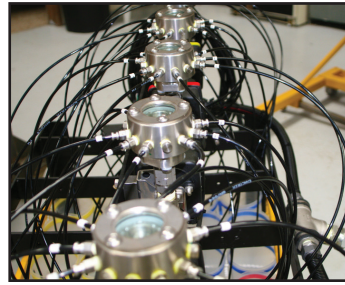
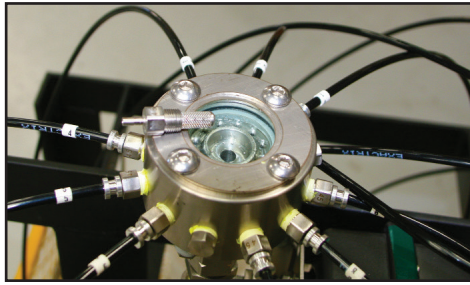
Controllers, tested and compatible with most controllers and virtual terminals

1. ISO-Bus Virtual Terminals complete with six section control or ten section control with Auto Boom.
2. Trimble
3. Deere
4. Case
5. Ag Leader

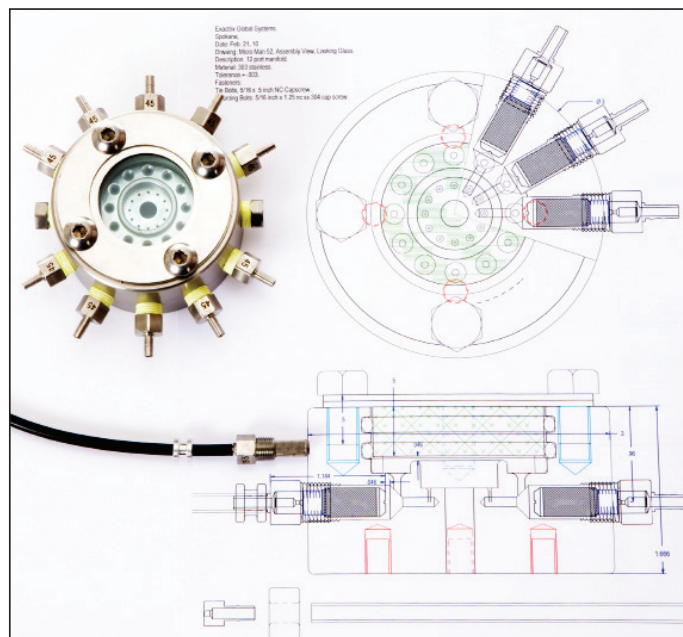
Pressure and Tachometer Optional based on controller capability.

Exactrix Pressure gauge panels are available in 8 readout 0 to 500 psi.

Tachometer Panel is utilized for 2 position readout of pump and air-seeder fan to 10,000 rpm.



Looking Glass Manifold



ISO-Bus Control With ECU Auto Boom
Your favorite controller utilized.



Pump Tachometers
with timed bleed.



Pressure Panel
8 Readouts.

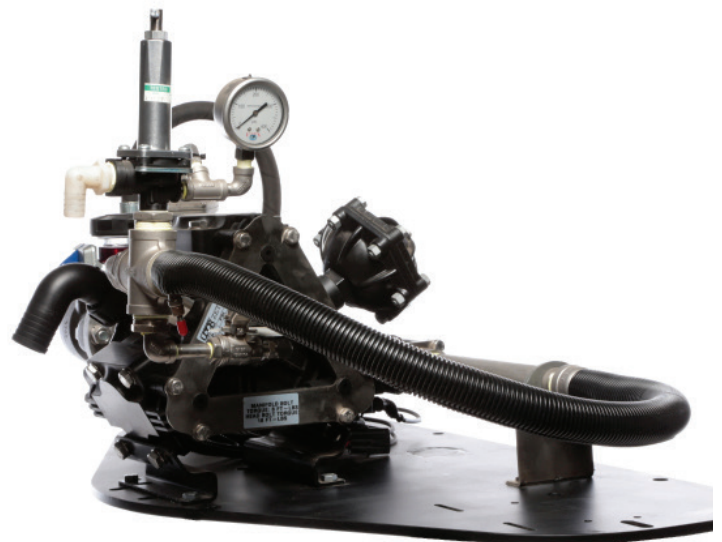
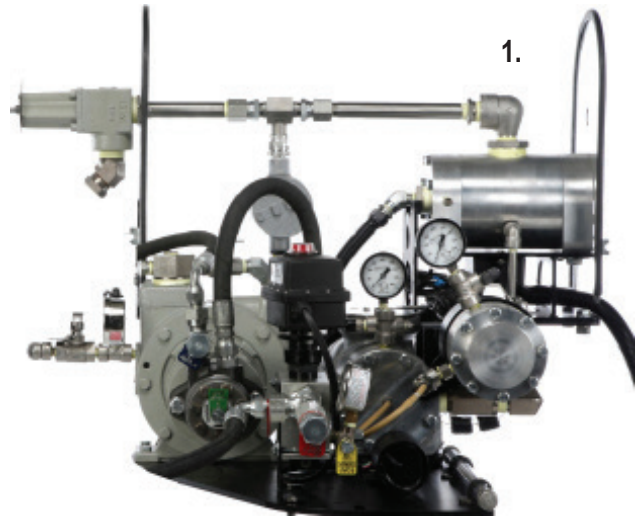
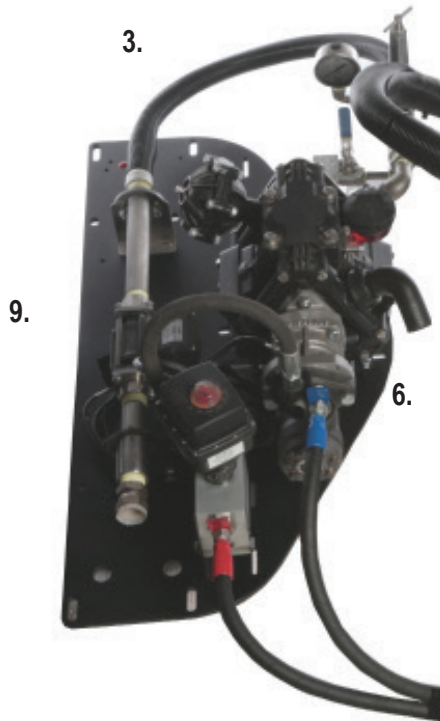
Twin V, TAPPS Formulator.

Applies 133% more crop available N and 200% more crop available P.

Tractor Virtual Terminal in ISO-Bus control. The 2KT turbine flow system is set up to 6 or up 10 section Auto Boom, Twin Top Outlet NH₃ Tanks to 17 gallons per minute nominal. Up to 22 gallons per minute with ST, A-479R twin Top Outlet Tank Valves.

The 2KP-315 TAPPS formulator is de-rated to 386 rpm at 10.4 gallons per minute at 300 psi at 5.0 gpm hydraulic flow. Exactrix Dual Stage Manifolds are utilized for both systems with cut-to-length manifold delivery lines and ½ inch stainless manifold high pressure ball valves.

The Twin V nominal hydraulic flow is 7.5 gpm with a maximum flow at 11.5 gpm using ¾ hydraulic supply and return lines.

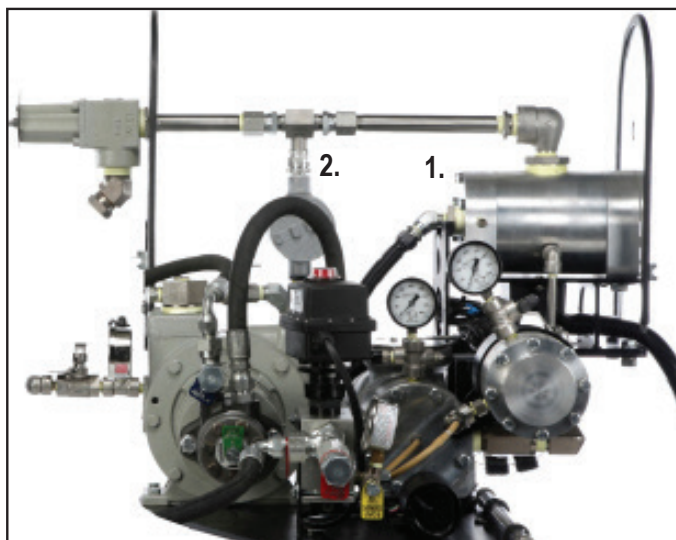
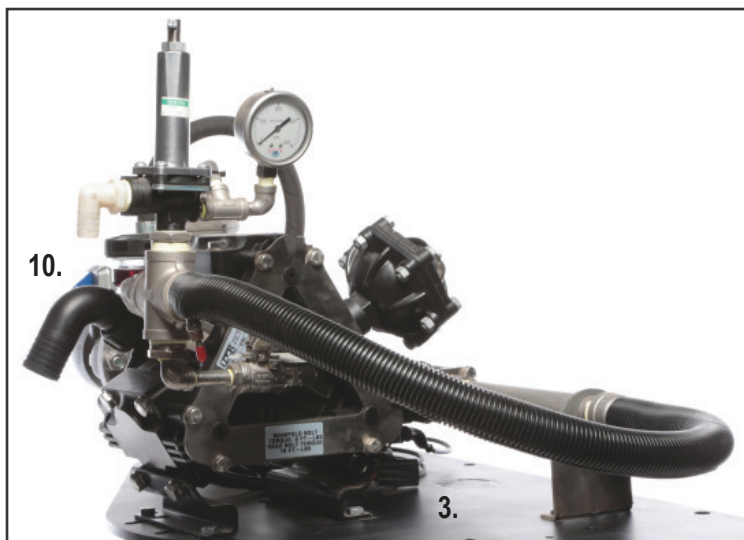


TR. TAPPS Formulator with Looking Glass Manifolds.

Applies 125% more crop available N and 200% more crop available P.

Controlled with Virtual Terminal Tractor mount ISO Bus. The 2KT turbine flow system is set up with 6 or 10 section Auto Boom Control. Twin Top outlet tanks up to 17 gallons per minute nominal. The system maximum flow is 22 gallons per minute with twin ST,A479R top outlet tank valves.

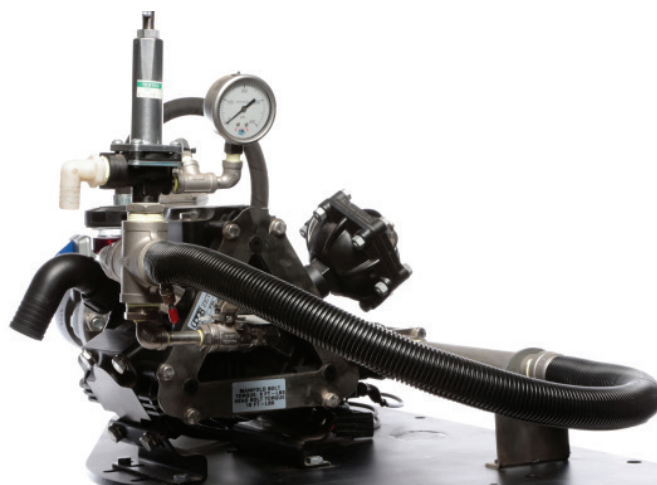
The 2KR 315 TAPPS formulator is de-rated to 386 rpm at 10.4 gallons per minute at 200 psi at 5.0 gpm hydraulic flow. Looking Glass Manifolds are utilized for both the 2KT and 2KR. Multiple manifolds in section control are often set up in 10 or 12 foot sections for air seeders on 12 inch band spacing. Manifold delivery lines are cut to length sheathed red nylon.



1. The 2KT is utilized as the base system for NH3 delivery.
2. The Twin V offers temperature compensation or Auto-Bulk Density is standard.
3. The 2KR is designed around a 10.4 gpm maximum APP/ATS flow. The Looking Glass Manifolds use a .030 to .055 manifold adapter orifice with a .080 stripping orifice with band centers of 15 inch. The delivery line selection is .375 x .25 id. Check Valves are located at each opener.
4. The 2KP Exactrix Dual Stage Manifold utilizes a 100 mesh primary filter.
5. The 2KR Looking Glass Manifolds utilize a 50 mesh screen.
6. The three cylinder pump with a flow pulsation dampener is de-rated 1.5 times for extended life. Use Exactrix specialized openers to formulate TAPPS.
7. The 2KP/2KR ECU, ISO-bus is located under the 2KC Great Plains Weather Shield. All components are time proven with a long track record of performance.
8. The 2KR Looking Glass Manifold is limited to 5 gallons per minute flow. Two manifolds are required in the base pricing of the 2KR and 2KT.
9. The 2KP/2KR flow meter is a laminar flow, magnetic reluctance, signal generator with 10x inlet and outlet flow adapter tails to assure a non-turbulent flow.
10. The 2KR Flow splitters are designed around maximum efficiency with cut to length manifold lines. The manifold delivery lines are cut to length and use ferrule type fittings with stainless steel ends. Swivels are not required.

The 2KP and 2KR are the same except for the de-rated 2KR pump and final filter is standard at the flow meter outlet with the 2KR. The 2KR filtration is made at the engine...not at the manifold.

4.



Two National Awards for efficiency of crop nutrients.

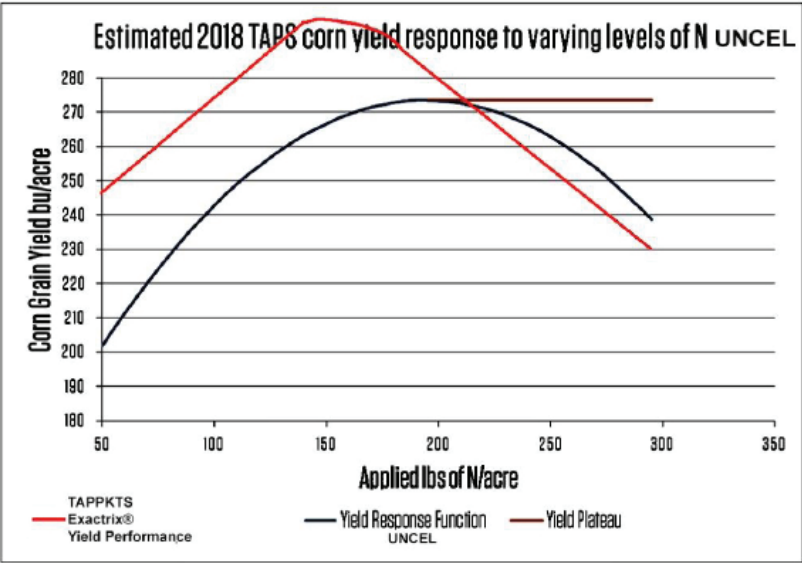
Applies 166% more crop available N and 200% more crop available P.
Weighmaster combined with TAPPS Formulators,
2KC, 2KD Weighmaster, 2KP,2KM TAPPS formulators.

Several choices for control, Tractor Virtual Terminal in ISO-Bus. Custody Transfer readout for NH3 and APP/ATS.

The 2KC, 2KD Coriolis Mass Flow system are set up to 10 section auto boom.
Liquid NH3 application to 35 gpm with 2KC and up to 65 gpm NH3 with 2KD, Series 3, Weighmaster.

The 2KP-315 TAPPS formulator is rated at 15 gallons per minute at 300 psi at 5.0 gpm hydraulic flow.
The 2KP-322 TAPPS formulator is rated at 22 gpm at 300 psi at 6.5 gpm hydraulic flow.

Dual product, The 2KC, 2KP TAPPS formulators have nominal hydraulic flow is 10.5 gpm with a maximum flow at 18 gpm using ¾ hydraulic supply and return lines.



Less is more and time proven.

1. Hydraulic Motor, 1.9 to 5.97 cu. in. assures oil conservation with maximum torque at rpm required at pressures to 2600 psi. (Eaton or Sauer Danfoss)

2. Hydraulic Flow Control valve provides a 3 second response full turn with 4 flow choices, 5.0, 6.5, 8.0 and 11.0 gpm.

3. All Hydraulic hook ups are JIC Male with Color Code and Name Tags.
Check Valve protected...No chance of hooking up the system backwards....the system initial run in is foolproof.

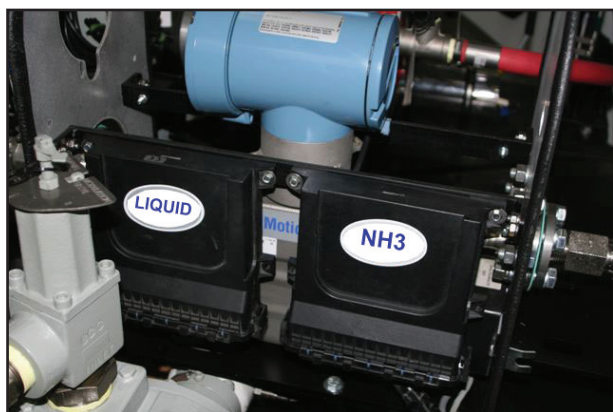
4. The Stainless Steel Great Plains Weather Shield protects the Flow meter and the ISO-Bus ECU and Auto Boom components.

5. The Corken Modulation Valve allows very low flows and provides a variable back pressure on the system.

6. The Corken Sliding Vane Exactrix pump allows low hydraulic flow and delivers only liquid state NH3 at a predictable rpm.
The Corken Sliding Vane Exactrix pump allows flows to 35 or 65 gpm at pressures to 350 psi, (150 psi above tank).
The Corken Exactrix pump is Underwriters Laboratories listed and produced by the world's largest compressed gas pump manufacturers.
The Corken Sliding Vane Exactrix Pump is rated to 65 gpm or 130 gpm and is de-rated 2 times to assure long life with the highest quality components.
The Corken Sliding Vane Exactrix Pump can be stored with NH3 in the pump. No pump maintenance is required other than 1 grease application per year.

7. Exactrix Coriolis Mass Flow assures accuracy of .003 in all flow and pressure ranges.
Exactrix Mass Flow allows very low applications....as low as 7 pounds N per acre at 40 feet in width.
Exactrix Mass Flow applies by weight....not volume...you pay for weight of NH3 not volume. Accuracy levels that pay the entire investment back in the first 2,000 acres of irrigated corn production.
Independent stand alone metering of NH3 resulting in tamperproof delivery of NH3.
Three sizes of Mass Meters, 1/2, 1, and 2 inch diameter that regulate from 2.5 pounds N to 1200 pounds N per minute.
For the very first time...liquid delivery of NH3 with every band the same (.0087)....and every acre the same...and every field applied within .003 lineal band accuracy....making Exactrix N 166% more crop available when combined with APP/ATS to form TAPPS.

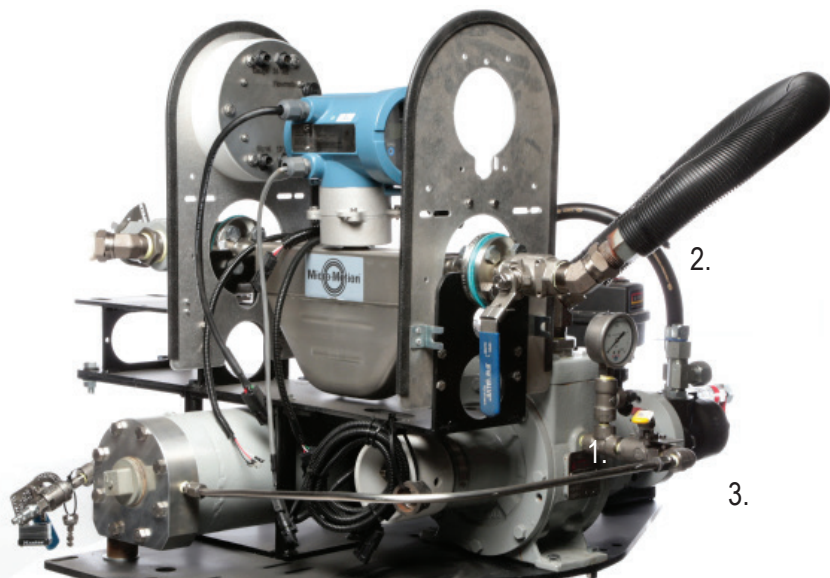
8. Exactrix Avoids the Gas State Flow....Exactrix variable displacement manifolds drive delivery as a Liquid State.
Exactrix Dual Stage Manifolds....allow high ground speeds...from 2 mph to 15 mph with stage start up and stage shut down.
Unique high quality manifolds produce liquid flow splits utilizing variable displacement accumulator with two orifice events in the manifold.
Assures liquid delivery from the manifold to the opener injection orifice...No gas state flow as with other types of manifolds.
A hydraulic single state delivery from the manifold to injection orifice at 180 mph injection speeds in liquid streaming flows.
Exactrix high pressure liquid NH3 performs much like aqua ammonia without the splash and the hassle of aqua.



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Mass flow - custody transfer in cab mount

9. All Exactrix components after the 100/40 mesh final filter are stainless steel high pressure fittings to assure very low to no maintenance of the Mass flow meter flow system. The Exactrix final filter elements are re-useable and cleaned when internal pressure gauge gets too high. The Exactrix double backed filter element is silver soldered and sealed with double o-rings to avoid filter channeling. The Exactrix Final filter catches and stores all particulate and rust (.006" or .017" dia.) that may pass from the pump towards the flow meter. An optional large Final Filter ceramic magnet can be installed if low quality material or poor tanks are being supplied.



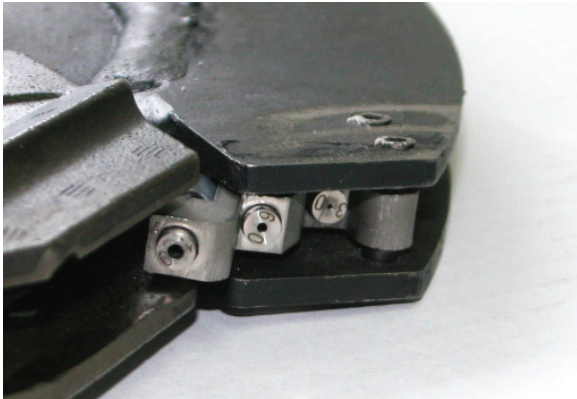
Crystalline TAPPS

10 The Phase Locked Loop allows the pump to slip in the corners. The Phase Locked Loop allows the pump to respond rapidly to variable rate changes. The Phase Locked Loop allows Auto Boom to function more effectively by reducing pressure surges.

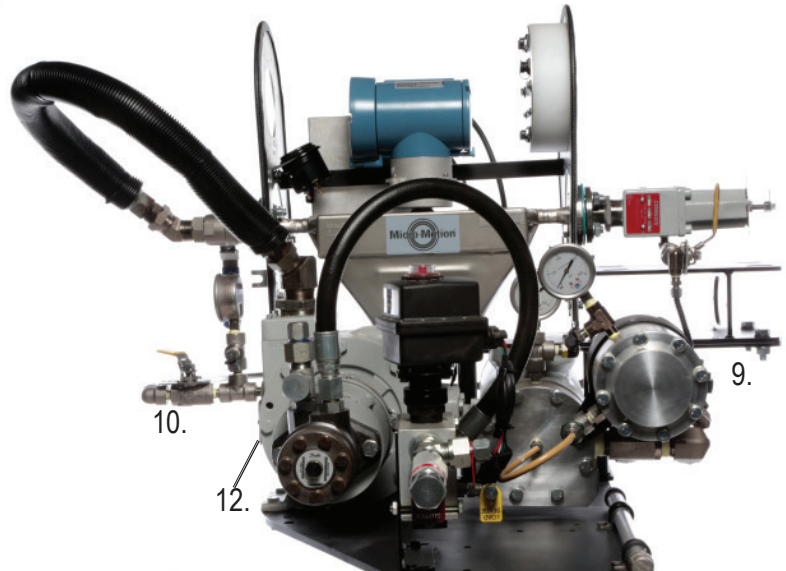
11. The Exactrix injection orifices are supplied in standard .012 to .120 in precision increments for various band spacings. The Exactrix orifices are produced with high precision assuring application is less than 1% CV. The Exactrix specialized openers allow liquid NH3 to be injected with exactness and precision. The openers are removable and lines are joined with standard Exactrix Line splices or optional high pressure unions.

12. A Powerful Tool...Only Corken Sliding Vane Exactrix Pumps provide the operator true relationships between supply and delivery of NH3 using a pump Tachometer. The pump tachometer assures proper reporting of system health...allowing repeatable flow and delivery targets to be understood. The pump tachometer provides valuable assistance in setting the modulation valve. The pump tachometer allows easy monitoring of the Auto Boom start and stop of each section. The pump tachometer is a double assurance that the VR, Site specific targets are being meet. The pump tachometer monitors pump supply and poor or blocked NH3 tank valves. The pump tachometer avoids over revving of the pump when the supply of NH3 is poor or the system is empty.

Each system is flow and pressure tested for 1 hour in a dynamic check of all system components.



11.



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Nutrients are More Crop Available....181% more pounds of Nutrient are available with Exactrix TAPPS Formulators.

Triple super ammonization of Ammonium Poly Phosphate and nitrogen stabilization with Ammonium Thio-Sulfate and Zinc. In irrigated corn production, 170-60-0-40S-1Zn Exactrix applying 271 total pounds of TAPPS Nutrient in an Ortho Ratio reacts in the soil allowing the equivalent of 489 pounds of nutrient applied with pressure reducing NH₃ and dry phosphate and sulfur.

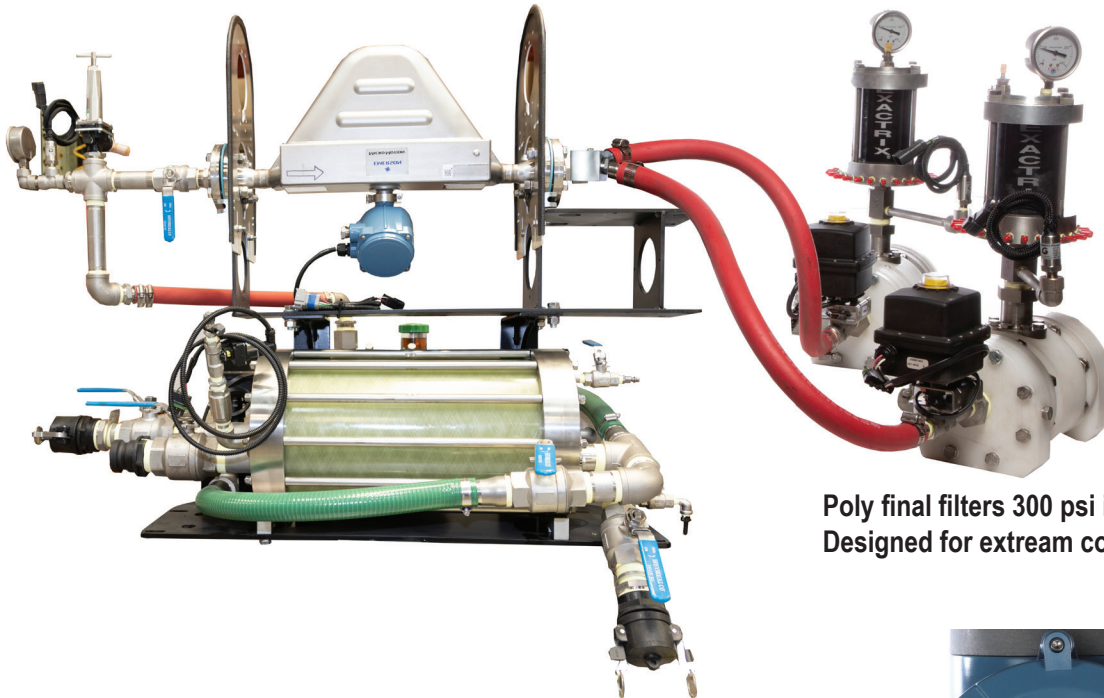
The producer with the old fashioned dry/NH₃ application systems would need to apply 181% more nutrient in a separate and different process to be equivalent and as crop effective as Exactrix TAPPS. Furthermore the yields would never be as high since the irregular application of the old fashioned systems are plant toxic at higher rates.

Exactrix TAPPS Formulators, 2KP and 2KM are matched with 2KC and 2KD Weigh Master Liquid NH₃ systems.

The 2KP is rated with two pump sizes at 15 gpm and 22 gpm using 10-D or 16-D flow meters for maximum turndown performance. Primary filters to match.

The 2KP is also rated with two hydraulic motor selections at 5 gpm or 6.5 gpm.

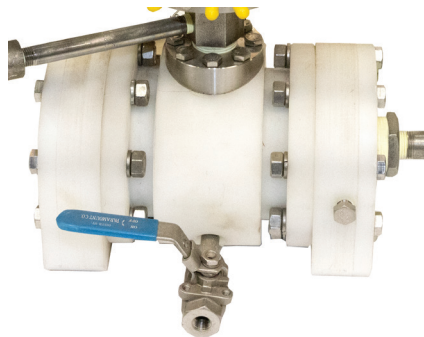
The 2KM is rated with 4 pump sizes at 22, 28, 38 and 60 gpm. All four 2KM systems use the large 5 gallon back flush filter housing with 40 or 100 mesh filter elements to handle large flows. Hydraulic motor flows available are 6.5, 8 and 11 gpm. Three volumetric flow meters, 10-D, 16-D, 20-D are utilized for the various flow ranges. The Mass flow meter system will also compute the specific gravity of the APP/ATS blend to assure high quality and correct billing.



Poly final filters 300 psi injection.
Designed for extreme conditions.

2KM Mass Flow systems provide specific gravity readout of the liquid blends confirming analysis of the liquid blend.

2KM Mass Flow systems with Sparging Reflow Blender allows mixing and blending of difficult materials on the go.



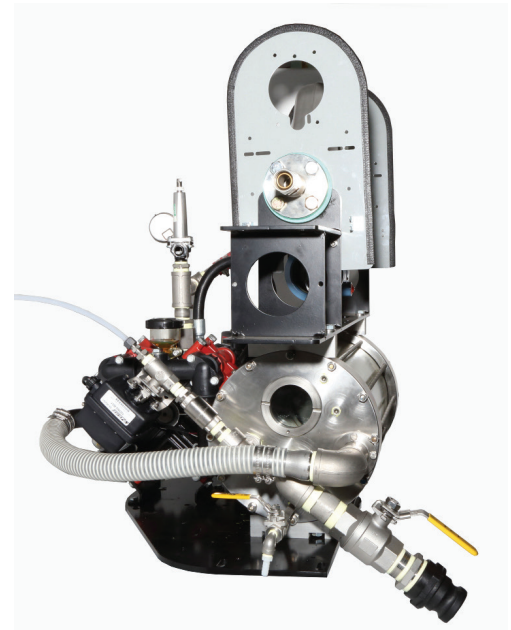
Specific Gravity Readout
Ideal for custody transfer and field operations billing.

Compatible cross linked polymer construction. Fits well with all fertilizer types including Green Phosphoric Acid and Chloride materials.

High pressure final filters allow all liquid state fertilizers to be injected at pressures to 300 psi. Several element mesh are utilized with dual o-ring sealing. Element ends are silver soldered.



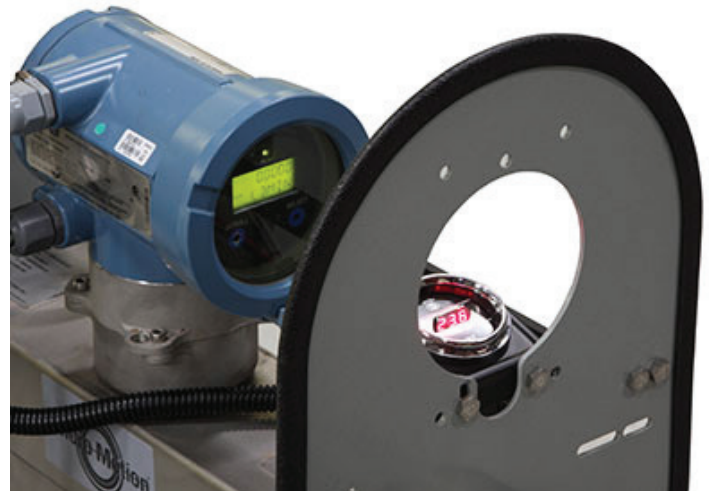
Series 3 2KM maintains high flow with pump capability to 60 gpm. Sparging Flow Blender is standard.



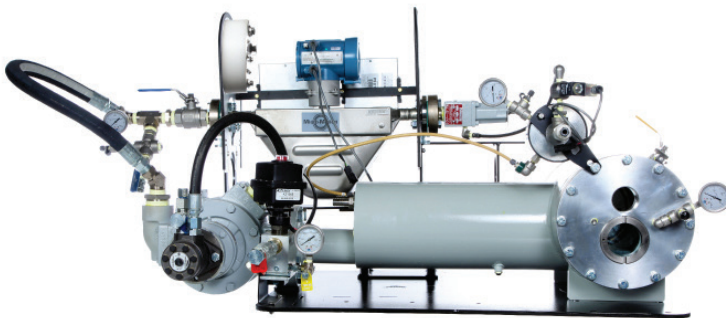
Mass Flow Weigh Master 2KM with advanced blending technology using 2KR Blender.



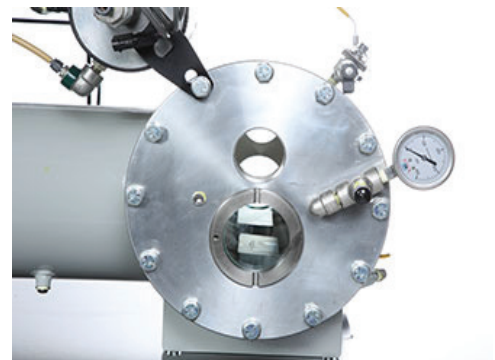
2KC, Series 3 NH3 system. Utilized on tool bars flowing between 20 to 40 gallons per minute NH3.



Custody Transfer and Variable Rate application with excellent 40 to 1 turndown and accuracy of 20 to 30 lbs for 10,000 lbs. applied. A good choice on 40 to 84 foot tool bars.



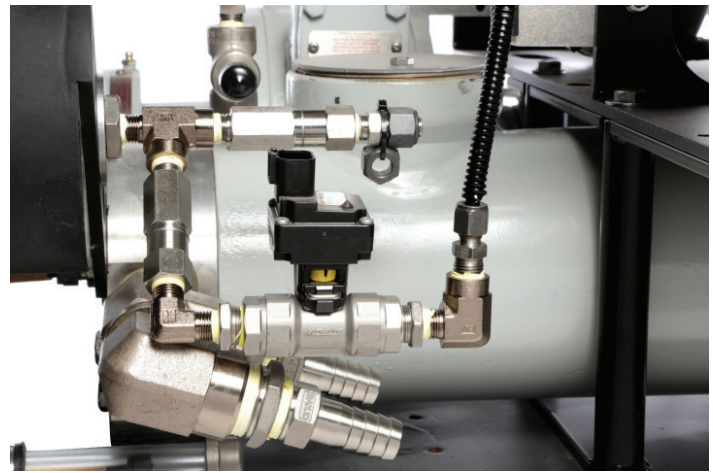
2KC Series 3 NH3 system with Laminator Flow capacity of 9 gallons.



A large primary filter with view windows allow visual filter condition of the filter element with magnetic attraction of flow particulate.



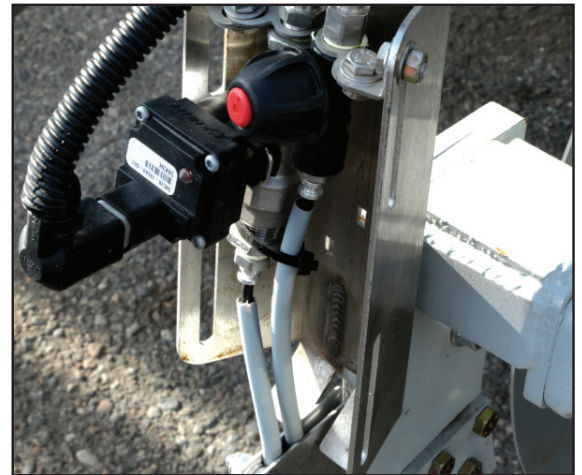
2KR Blenders assure accurate delivery of 3rd product for blending.



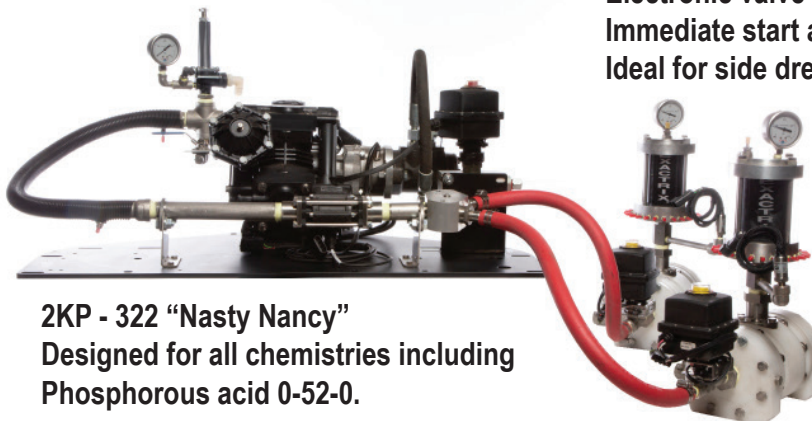
**Remote bleed at fill
Pre start of NH₃ system. Ball valve action.**



In cab mount. Micro Motion read out.



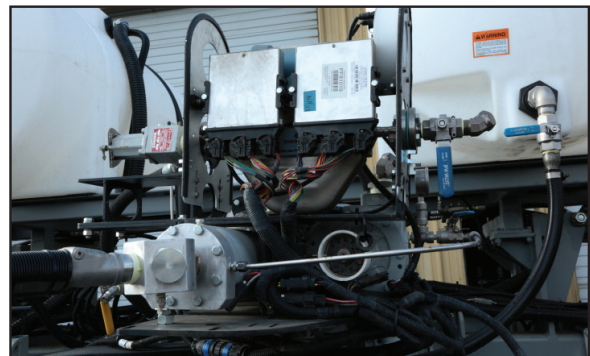
**Electronic valve on opener.
Immediate start and shutdown.
Ideal for side dress.**



**2KP - 322 "Nasty Nancy"
Designed for all chemistries including
Phosphorous acid 0-52-0.**



**Timed bleed tachometers are for two systems.
Series 2KC, 2KP, 2KR, 2KM**



ISO-Bus Control

Winner of two National Awards....Exactrix has developed a unique product for utilization on your farm with superior investment economics.

Backed by years of University and producer testing with confirmation of nutrient efficiency around the US and Canada. STEEP criteria is utilized in all nutrient trials.



Your applicator project may be large....with 20,000 acres to cover.



Your applicator project may be smaller2,000 acres to cover.



Most commercial single disc openers are easily adapted along with shank type openers.
Your Exactrix Sales Engineer will help you design a system that will match your Landscape, Rotation, Rainfall Pattern and Scale.
We will help you find the right machine and match your machine with the right Exactrix system and control options.
Top notch Sales Engineers and Field Service Technicians with many seasons of experience will be backing your decision.