

SEED TREATMENT MACHINERY



**Our innovations
Your success**



EDITORIAL

Quality. Precision. Dependability. Service. Technical Support.

Seed treatment has become an integral part of crop protection around the world, and Bayer has the innovation that provides the right solution for your needs. After years of successful collaboration, US-based legacy company Gustafson LLC became 100 percent part of the Bayer CropScience family in March 2004, following an acquisition of 50 percent interest in 1998.

As an inventor company, we continue to focus our activities on producing the highest quality application machinery for the seed treatment industry. Only Bayer offers seed treatment products and machinery for which to apply them. Our integrated approach offers sustainable systems and solutions for meeting the needs of a changing agricultural world.

Our treating systems are closed-loop and designed with dust evacuation, limiting exposure to operators and the environment. They are engineered with easy to use closed-loop calibration for accuracy, again limiting exposure to operators and the environment. And lastly, our treating systems are designed to give accurate seed coverage, thus reducing the amount of costly seed treatment products, which further helps reduce your input costs and final output to the environment.

More than products, we support your business with a dedicated Seed Application Technology platform. This encompasses a machinery department able to build or customize new seed treatment machinery, 10 centers of application worldwide with local experts (Seed Treatment Application Centers) and a dedicated Research Facility. We work with you, locally and globally, to obtain the best treated seeds, perfectly covered and colored, easy and safe to use for your customers.

Innovation...It's in everything we do.

Contact Us

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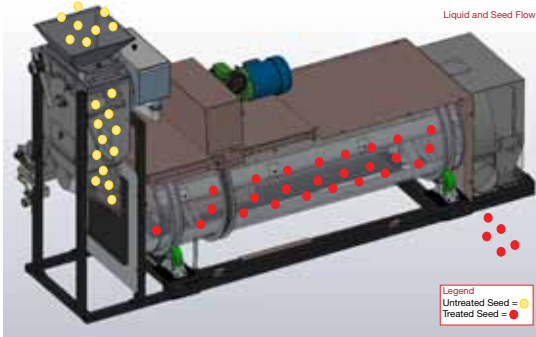
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AMPD DRUM TREATING SYSTEM

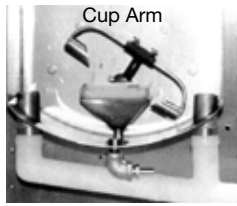
Theory of Operation



Treater Head and Metering Tank

The Weighpan + Counterweight + Chemical Cup Arm Assemblies are connected and work in tandem. Refer to the illustration, left.

- 1 As the Counterweight tips to the left, the Weighpan (inside the Treater Head) tips left and fills with seed on the right side pocket.
- 2 The Chemical Cup (inside the Metering Tank) on the left also tips left and dips the Chemical Cup into the chemical reservoir and fills with chemical.

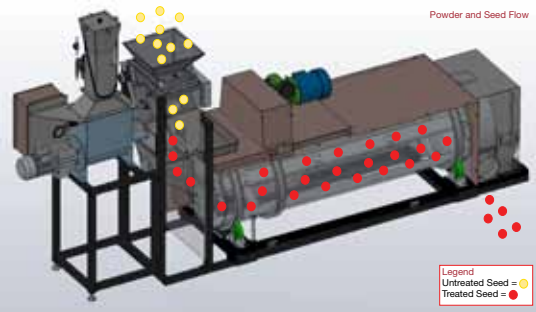


- 3 When full of seed, the Weighpan and Chemical Cup both tip over to the right and dump the seed down into the Seed Transition and the chemical into the Chemical Funnel (chemical will not flow until Weighpan tips).



- 4 Chemical flows down the clear vinyl tube (connected to the bottom of the Chemical Funnel) to the PPS (Reservoir Cup) and then to the Spray Nozzle. Seed is sprayed with chemical mixes together inside the Drum, then discharges.

This process is called a trip, which repeats over and over as seed fills one side of the Weighpan then tipping it over and dumping, then filling the other pocket, then tipping it over and dumping and so on, as long as seed continues to enter the inlet Hopper above the Weighpan.



Treater Head and Powder Applicator

The Weighpan + Counterweight + Powder Activation Trip Switch Cam are connected and work in tandem. Refer to the illustration, left.

- 1 As the Counterweight tips to the left, the Weighpan (inside the Treater Head) tips left and fills with seed on the right side pocket.
- 2 As the Counterweight tips, the Powder Activation Trip Switch Cam (connected to the Counterweight Arm) also trips and begins to meter powder into the Treater Head.



- 3 When full of seed, the Weighpan tips over and the Powder Activation Trip Switch Cam trips and dumps both seed and powder down into the Seed Transition (Trip Switch Cam will not trip until the Weighpan tips).



This process is called a trip, which repeats over and over as seed fills one side of the Weighpan then tipping it over and dumping, then filling the other pocket, then tipping it over and dumping and so on, as long as seed continues to enter the inlet Hopper above the Weighpan.

Each time the Counterweight Arm trips with the Weighpan, it also trips the Powder Activation Trip Switch Cam and meters powder into the Treater Head.



AMPD DRUM TREATING SYSTEM

Recommended for treating peanut and soya seed



Stainless Steel Treater Head Assembly

- Stainless steel S-100 inlet hopper with shut-off gate
- Stainless steel S-100 weighpan housing & weighpan
- Stainless steel inlet transition
- Time delay limit switch & trip switch cam assembly
- Stainless steel single metering tank (liquid only)



Drum Assembly

- 1/2hp, 230V, 3ph, 60Hz, 2.4fIA with 1hp disco variable speed reducer
- CRS drum guard panels
- Stainless steel 6' x 18" mixing drum with lift bars
- Adjustable drum frame
- Stainless steel doghouse with dust evacuation port
- Removable doghouse door
- 7mm quarter turn key



Optional Dry Delivery (pyramid box style)

- Air turbine vibrator
- Vibrator control
- Manual 4 way valve with filter regulator
- Main control box
- CRS support frame
- Powder low level warning sensor
- Nozzle body with probe & air cylinder
- VFD gear motor 44.5:1



Optional Dry Delivery (hopper style)

- Powder hopper (3cu ft)
- Self-supporting, hinged hopper lid
- 1.50 dust evacuation port (30cfm)
- 115V, 1ph, 60Hz vibrator
- Vibrator control
- Powder low level warning sensor
- VFD gear motor 44.5:1
- Powder feeder control panel
- CRS support frame

Treater Dimensions (base unit):

Height 55.47"
Length 99.38"
Width 31.83"

Features & Benefits

- Adjustable drum angle for improved seed flow, seed coverage and improved drum clean out
- Heavy-duty drum casters for smooth rotation

PEANUTS

Liquid Only (fungicides): 3,970-12,000bu./hr (1.8-5.4 M.T./hr)

Dry Powder Only: 3,970-15,000bu./hr (1.8-6.8 M.T./hr)

SOYBEANS

Liquid Only: 200-400 bu./hr (5.4-10.9 M.T./hr)

Dry Powder Only: 100-200 bu./hr (2.7-5.4 M.T./hr)

System Options

- Dry powder only (hopper)
- Liquid only
- Combined dry powder and liquid (hopper)
- Dry powder fungicide only (pyramid box)
- Combined dry powder fungicide and liquid (pyramid box)

Value Added Options

- Rubber lining kit for peanut applications

Positive Pressure System for liquid applications only

- P.025 air pump
- 1/2" fpt in-line filter, #20 mesh
- 4-port capacity chemical inlet
- 1/4" npt gate valve
- 1/4" npt, 60psi filter regulator

CF 35 DRUM TREATING SYSTEM

Theory of Operation

The CF 35 is a low volume, manually-fed treating system, designed to apply a treatment slurry to cereals, soybeans and maize. When the seed gate is opened and the pump is simultaneously started, treatment slurry is injected onto the seed as it flows to the inner mixing chamber.

The inner chamber auger provides a steady movement of the seed and deposits it in the outer drum. The low profile auger and the drum incline angle, allows seed to tumble back as it is being moved to discharge. The result is thorough blending and consistent coverage.

Seed discharges thru the double bagger assembly. This allows a filled bag to be removed from one discharge chute, while continuing to fill a new bag on the other chute.

IMPORTANT! Because this machinery is designed to treat multiple crops, the seed gate must be adjusted properly based on the flowability properties of the seed. If the gate is opened too wide, it can result in untreated seed backing up into the discharge.

TREAT MODE

1 When ready to begin treating seed, ensure a collection bin or bagging device is affixed to the double bagger to catch treated seed.

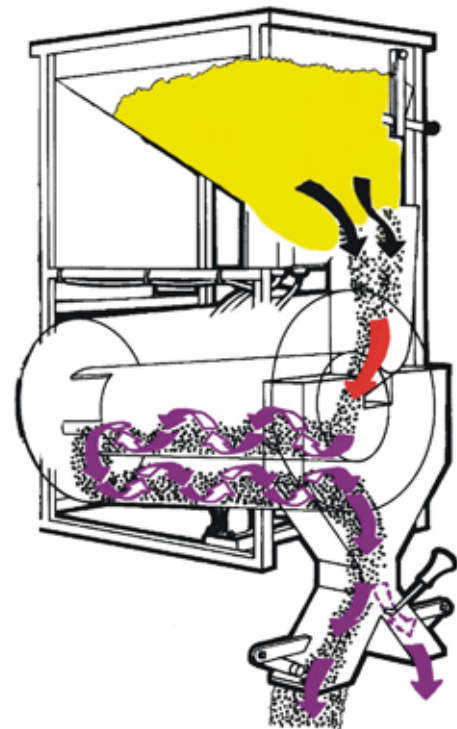
2 Fill the seed hopper with desired seed.

✓ **Tip: Always treat clean seed! This can also affect the seed flow rate.**

3 Turn the control panel DRUM switch to the ON position.

4 **SIMULTANEOUSLY** open the seed gate by pulling UP on the seed gate arm and turn the LS pump to REV.

Seed will begin flowing into the drum, where it will mix with the seed treatment chemical and then discharge out of the drum through, the double bagger.





CF35 DRUM TREATING SYSTEM

Recommended for treating cereals, cotton, maize, soya and sunflower seed



Seed Flow Control: up to 35 kg/mn (soya)

- Adjustable for customized seed flow
- Consistent, reliable seed flow for accurate application
- Adjustable seed gate stop
- Adjustable seed gate arm



Chemical Calibration

- 250ml Calibration Beaker
- 3-way manual valve for calibration/treat modes
- Easily accessible and removable for cleaning



Pump & Control

- LS peristaltic pump with speed control
- Rheostat control ensures precise metering of chemical onto seed
- Pump setup ensures low chemical rate application
- Peristaltic pump out performs diaphragm pumps



Drum

- Stainless steel mixing drum
- Guarded for operator safety
- .25kW drum motor with gear reducer
- Unique Twin Drum System: Inner Drum - Seed inlet and mixing, Outer Drum - Mixing, drying, seed discharge

Double Bagger Assembly

- Gate valve deflector
- Can treat into two 25kg bags at a time

Options

- Casters for greater mobility

Treater Dimensions:

Height 2211mm (adjustable)
Length: 1218mm
Width 721mm

Features & Benefits

- 15 litre chemical tank with manual agitation
- 180KG hopper capacity
- Single phase, 50Hz, 220VAC
- 2-way bagging discharge assembly
- Adjustable height; 8 stops - 100mm apart
- 250ML calibration tube included
- Variable speed peristaltic pump
- Adjustable seed flow gate
- Stainless steel drum for chemical resistance and long life
- Optional - Add casters for greater mobility

Value Added Features

- Easy calibration, bag to bag treatment, and easily transportable
- 8 Adjustable height positions
- Compact and portable, ideal for field treating
- In-line Chemical Filter with 20mesh filter, removable for cleaning and shut-off valve
- Parts Kit supplied with every CF35
- Modular smaller size and assembled frame helps to lower shipping costs

RH BASIC SERIES DRUM TREATING SYSTEM

Theory of Operation

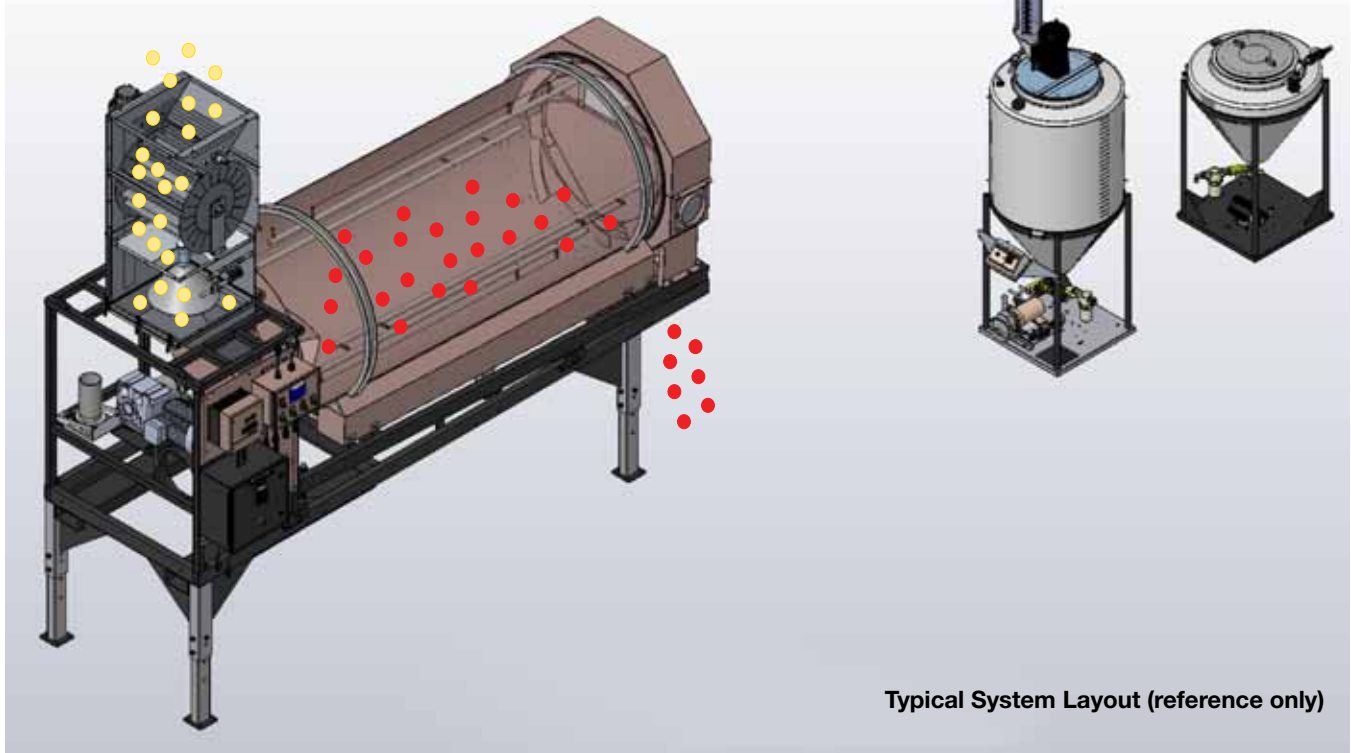
The RH Basic series treater is designed to continuously apply single or multiple products, simultaneously, to predefined quantities of seed, which is established through calibration.

Seed enters a compartmented wheel (refer to image on page 9). Each compartment has the same volume or capacity. The speed of the wheel, multiplied by the number of revolutions, defines the volume of seed processed per minute. The pumps that deliver the liquid products to the MIST-O-MATIC® atomizer are then calibrated, to deliver a specific quantity of liquid per minute. The seed and liquid then operate in harmony, until the systems are re-calibrated for new rates.

The seed passes thru an atomized cloud of liquid product in an even, circular curtain over the dispersion cone. The even distribution at application ensures a truly homogenous blend of seed and liquid, resulting in a high quality coating. This helps to ensure viable seeds are planted and result in high rates of efficacy.

The mixing drum is driven by a variable speed soft start motor. The incline angle of the drum can be adjusted. This, along with adjustable seed and liquid flow rates, allows for maximum flexibility, and helps to ensure a fully encapsulated seed finish, dry enough for immediate bagging, but not so dry as to create dusting issues.

Seed is typically delivered to the treater via an automated elevator or conveyance system into a surge hopper. Seed is commonly discharged into a holding bin or take away conveyance apparatus after treating.





RH 800 BASIC DRUM TREATING SYSTEM

Recommended for treating corn, cotton, rice, sugar beet, sorghum, soya and wheat seed



Rotary Volumetric Seed Wheel: 800 bu/hr (soya)

- Precise calibration and positive seed delivery control
- Rotary seed wheel connected to control box
- High quality stainless steel construction
- Connected to commercial grade AC and gear motors
- True 800 bushels per hour (based on soybeans)
- Upgrade current HC models with new RH seed wheel
- Safety guard above the seed wheel
- Safe and gentle seed handling
- Seed sensor - when no seed is available, system will shut down



Slurry Mix Tank: 225 Liter (60 Gallon)

- Provides accurate real time calibration by volume
- Peristaltic pump equipped with various element sizes
- Chemical recirculation function
- Quick disconnect NPT fittings for easy cleaning
- Tank agitation - for continuous chemical suspension
- When seed wheel stops, the pump stops
- Closed calibration limits worker exposure for improved safe handling procedures

Controllers

- Basic pump & atomizer control input-1: 115v/1PH/7A
- Drum drive: 230V/1PH/12A
- Seed wheel control: 115V/1PH/5A
- Adjustable seed wheel control for customized seed flow
- Seed wheel controls both consistent seed flow and chemical application accuracy
- Easy manual calibration between seed wheel control and closed calibration system



Innoculant Tank

- 115 Liter (30 Gallon)
- LS peristaltic pump



Treater Dimensions:

Height 118.75" (adjustable)
Length 110.65"
Width 36.15"

Features & Benefits

- Stainless steel treating head with rotary seed wheel
- MIST-O-MATIC® atomizer
- Variable speed drum control
- Drum lift bars help ensure homogenous treatment-to-seed coverage
- Gentle mixing reduces seed damage
- Adjustable drum stand

Value Added Services

- 1 year extended parts warranty
- Site assessments
- CAD engineering drawings
- Distributor network
- National service support

Options

- Optional Inlet surge bin
- Optional automated inlet conveyor control. Includes hi/lo sensors. Compatible with most automated system controls

Drum & Frame Features

- Direct drum drive
- Soft start/stop for full drum
- Drum angle adjustment
- Adjustable frame height
- Reversible drum for clean out
- Variable speed drum drive
- Adjustable drum and frame accommodates unique seed flow changes



RH 2000 BASIC DRUM TREATING SYSTEM

Recommended for treating corn, cotton, rice, sugar beet, sorghum, soya and wheat seed



Rotary Volumetric Seed Wheel: 2,000 bu/hr (soya)

Precise calibration and positive seed delivery control

- Rotary seed wheel connected to control box
- High quality stainless steel construction
- Connected to commercial grade AC and gear motors
- True 2000 bushels per hour (based on soybeans)
- Upgrade current HC models with new RH seed wheel
- Safety guard above the seed wheel
- Safe and gentle seed handling
- Seed sensor - when no seed is available, system will shut down



Slurry Mix Tank: 225 Liter (60 Gallon)

- Provides accurate real time calibration by volume
- Peristaltic pump equipped with various element sizes
- Chemical recirculation function
- Quick disconnect NPT fittings for easy cleaning
- Tank agitation - for continuous chemical suspension
- When seed wheel stops, the pump stops
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Controllers

- Basic pump & atomizer control input-1: 115v/1PH/7A
- Drum drive: 230V/1PH/12A
- Seed wheel control: 115V/1PH/5A
- Adjustable seed wheel control for customized seed flow
- Seed wheel controls both consistent seed flow and chemical application accuracy
- Easy manual calibration between seed wheel control and closed calibration system



Innoculant Tank

- 115 Liter (30 Gallon)
- LS peristaltic pump

Treater Dimensions:

Height 115.91" (adjustable)
Length 128.93"
Width 38.75"

Features & Benefits

- Stainless steel treating head with rotary seed wheel
- MIST-O-MATIC® atomizer
- Variable speed drum control
- Drum lift bars help ensure homogenous treatment-to-seed coverage
- Gentle mixing reduces seed damage
- Adjustable drum stand

Value Added Services

- 1 year extended parts warranty
- Site assessments
- CAD engineering drawings
- Distributor network
- National service support

Options

- 48" diameter drum
- Inlet surge bin
- Inlet conveyor control
Includes hi/lo sensors
Compatible with most automated system controls
- Upgrade current HC-2000 model with RH-2000 treater head

Drum & Frame Features

- Direct drum drive
- Soft start/stop for full drum
- Drum angle adjustment
- Adjustable frame height
- Reversible drum for clean out
- Variable speed drum drive
- Adjustable drum and frame accommodates unique seed flow changes

RH COMMERCIAL SERIES DRUM TREATING SYSTEM

Theory of Operation

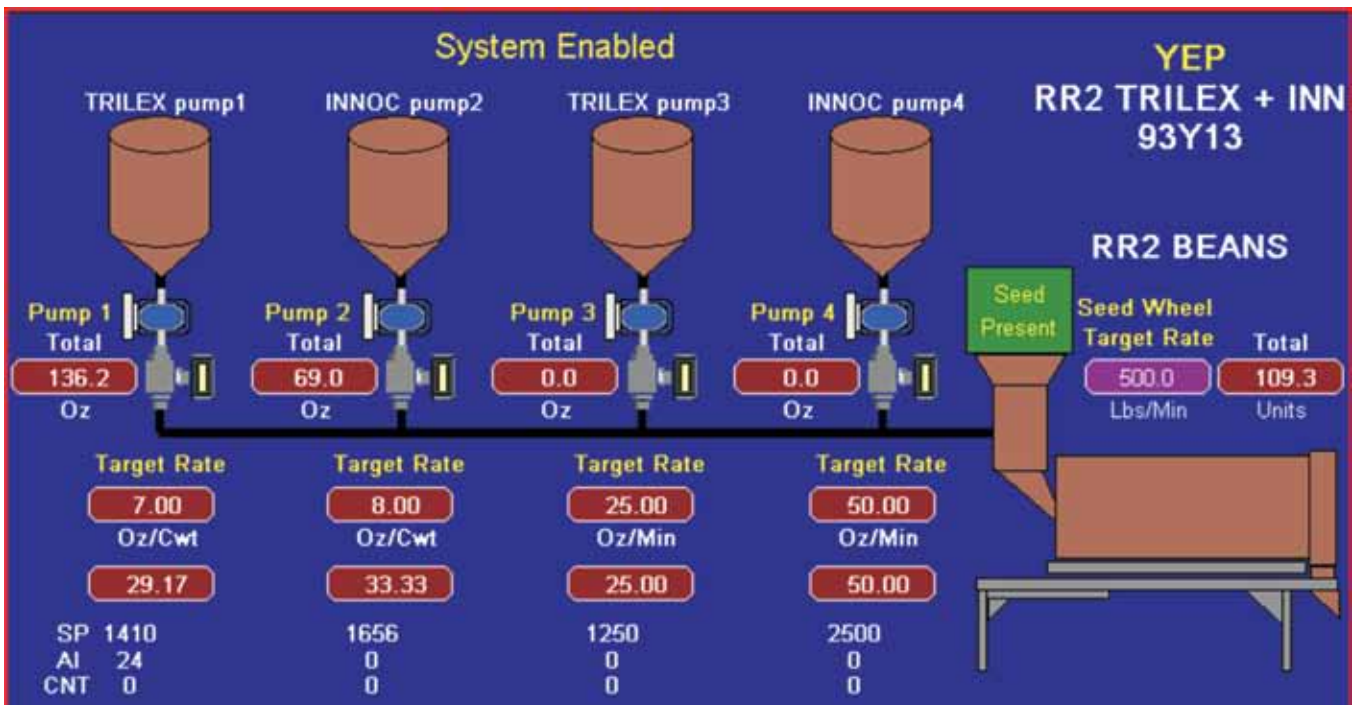
The RH Commercial series treater is designed to continuously apply single or multiple products, simultaneously, to predefined quantities of seed, which is established through calibration. The control panel PLC monitors continuous seed flow and pump rates (up to four) in a NEAT application, through requirements configured in the recipe. The PLC features data and reporting output capabilities. The automatic pump speed compensation helps prevent over/under treatment.

Seed enters a compartmented wheel (refer to image on page 12). Each compartment has the same volume or capacity. The speed of the wheel, multiplied by the number of revolutions, defines the volume of seed processed per minute. The pumps that deliver the liquid products to the MIST-O-MATIC® atomizer are then calibrated to deliver a specific quantity of liquid per minute. The seed and liquid then operate in harmony, until the systems are re-calibrated for new rates.

The seed passes thru an atomized cloud of liquid product in an even, circular curtain over the dispersion cone. The even distribution at application ensures a truly homogenous blend of seed and liquid, resulting in a high quality coating. This helps to ensure viable seeds are planted and result in high rates of efficacy.

The mixing drum is driven by a variable speed soft start motor. The incline angle of the drum can be adjusted. This, along with adjustable seed and liquid flow rates, allows for maximum flexibility, and helps to ensure a fully encapsulated seed finish, dry enough for immediate bagging, but not so dry as to create dusting issues.

Seed is typically delivered to the treater via an automated elevator or conveyance system into a surge hopper. Seed is commonly discharged into a holding bin or take away conveyance apparatus after treating.





RH 800 COMMERCIAL DRUM TREATING SYSTEM

Recommended for treating corn, cotton, rice, sugar beet, sorghum, soya and wheat seed



Rotary Volumetric Seed Wheel: 800 bu/hr (soya)

Precise calibration and positive seed delivery control

- Rotary seed wheel connected to control box
- High quality stainless steel construction
- Connected to commercial grade AC and gear motors
- True 800 bushels per hour (based on soybeans)
- Upgrade current HC models with new RH seed wheel
- Safety guard above the seed wheel
- Safe and gentle seed handling
- Seed sensor - when no seed is available, system will shut down



Slurry Mix Tank: 225 Liter (60 Gallon)

- Provides accurate real time calibration by volume
- Peristaltic pump equipped with various element sizes
- Chemical recirculation function
- Quick disconnect NPT fittings for easy cleaning
- Tank agitation - for continuous chemical suspension
- When seed wheel stops, the pump stops
- Closed calibration limits worker exposure for improved safe handling procedures
- Automatic pump speed compensation helps prevent over/under treatment.



Flow Meter

- Helps prevent costly spills due to hose malfunction
- Flow meter communicates with the PLC
- Easy cleaning and maintenance
- Cost effective and quality design



Innoculant Tank

- 115 Liter (30 Gallon), no agitation
- IP peristaltic pump
- Flow meter feedback
- closed calibration

Options

- Inlet surge bin
- Inlet conveyor control for automating conveyors. Includes hi/lo sensors. Compatible with most automated system controls

Treater Dimensions:

Height 118.75" (adjustable)
Length 115.43"
Width 44.00"

Features & Benefits

- Stainless steel treating head with rotary seed wheel
- MIST-O-MATIC® atomizer
- UL 508 Listed control panel
- 12" color touch screen HMI interface
- highly accurate AC variable frequency drives
- PLC data and reporting (printer not included)
- Variable speed drum control
- Adjustable drum stand
- Drum lift bars help ensure homogenous treatment-to-seed coverage
- Gentle mixing reduces seed damage

Value Added Services

- Includes start-up, installation and training
- Site assessments
- CAD engineering drawings
- Annual software upgrade
- Distributor network
- National service support

Drum & Frame Features

- Direct drum drive
- Soft start/stop for full drum
- Drum angle adjustment
- Adjustable frame height
- Reversible drum for clean out
- Variable speed drum drive
- Adjustable drum and frame accommodates unique seed flow changes



RH 2000 COMMERCIAL DRUM TREATING SYSTEM

Recommended for treating corn, cotton, rice, sugar beet, sorghum, soya and wheat seed



Rotary Volumetric Seed Wheel: 2,000 bu/hr (soya)

Precise calibration and positive seed delivery control

- Rotary seed wheel connected to control box
- High quality stainless steel construction
- Connected to commercial grade AC and gear motors
- True 800 bushels per hour (based on soybeans)
- Upgrade current HC models with new RH seed wheel
- Safety guard above the seed wheel
- Safe and gentle seed handling
- Seed sensor - when no seed is available, system will shut down



Slurry Mix Tank: 225 Liter (60 Gallon)

- Provides accurate real time calibration by volume
- Peristaltic pump equipped with various element sizes
- Chemical recirculation function
- Quick disconnect NPT fittings for easy cleaning
- Tank agitation - for continuous chemical suspension
- When seed wheel stops, the pump stops
- Closed calibration limits worker exposure for improved safe handling procedures
- Automatic pump speed compensation helps prevent over/under treatment.



Flow Meter

- Helps prevent costly spills due to hose malfunction
- Flow meter communicates with the PLC
- Easy cleaning and maintenance
- Cost effective and quality design



Innoculant Tank

- 115 Liter (30 Gallon), no agitation
- IP peristaltic pump
- Flow meter feedback
- closed calibration

Options

- 48" diameter drum
- Inlet surge bin
- Inlet conveyor control. Includes hi/lo sensors
Compatible with most automated system controls
- Upgrade current HC-2000 model with RH-2000 treater head

Features & Benefits

- Stainless steel treating head with rotary seed wheel
- MIST-O-MATIC® atomizer
- UL 508 Listed control panel
- 12" color touch screen HMI interface
- highly accurate AC variable frequency drives
- PLC data and reporting (printer not included)
- Variable speed drum control
- Adjustable drum stand
- Drum lift bars help ensure homogenous treatment-to-seed coverage
- Gentle mixing reduces seed damage

Value Added Services

- Includes start-up, installation and training
- Site assessments
- CAD engineering drawings
- Annual software upgrade
- Distributor network
- National service support

Treater Dimensions:

Height 115.91" (adjustable)
Length 143.42"
Width 38.75"

Drum & Frame Features

- Direct drum drive
- Soft start/stop for full drum
- Drum angle adjustment
- Adjustable frame height
- Reversible drum for clean out
- Variable speed drum drive
- Adjustable drum and frame accommodates unique seed flow changes

ON DEMAND DRUM TREATING SYSTEM

ON DEMAND

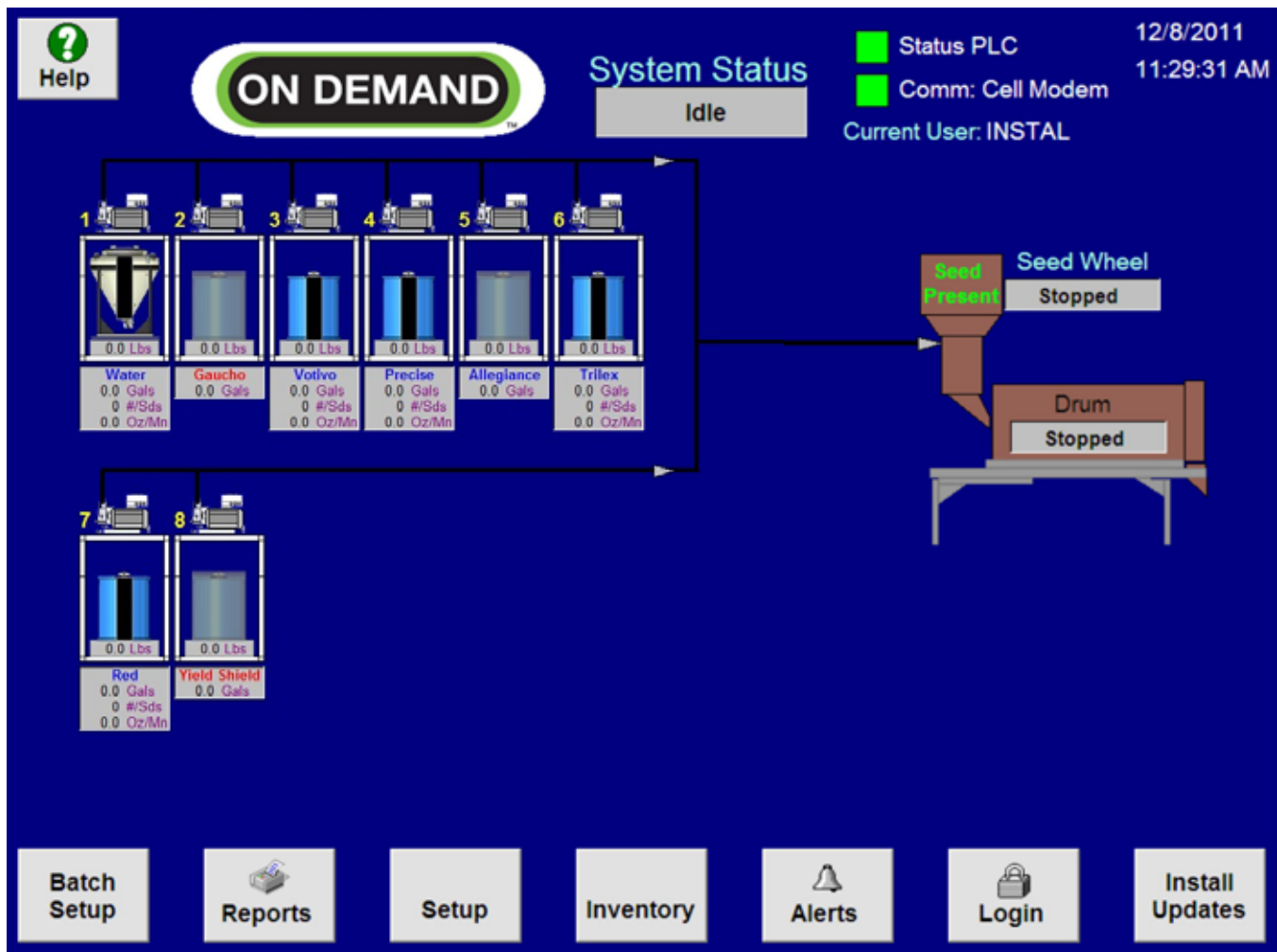
Theory of Operation

The On Demand™ System is designed to continuously apply Poncho®/VOTiVO® and Bayer Seed Treatment products at Downstream sites. The control panel PLC monitors continuous seed flow and pump rates (up to twelve) in a NEAT application, through requirements configured in the recipe. The PLC features data and reporting output capabilities. The automatic pump speed compensation helps prevent over/under treatment.

The On Demand System comes enabled with added features and benefits, such as: limit the risk of carryover-treated seeds, helps ensure seed companies' recommendations and choice of treatments are actually followed, monitor the quality of the application process for each batch of treated seeds, and simplify treating operations at seed dealer/retail locations

Downstream application at seed dealer / retail locations creates flexibility of application right before planting, more complex operations locally, and variability in the quality and consistency of treatment application.

The RH machine used in this system operates the same as the RH Commercial model (refer to page 11). The PLC HMI touch panel graphic below shows an 8 keg & tank + RH system configuration (reference only).



PRODUCT DETAILS

- **Simplicity** – On Demand is fully automated with preloaded bulk drums that eliminate the need for hand mixing. “Neat” applications will be standard, with no slurry and no measuring and mixing errors.
- **Accuracy** – Application accuracy is comparable to commercial systems.
- **Flexibility** – Custom application without developing multiple in-can formulations; each seed company can have its own recipe for differentiation.
- **Inventory Management** – On Demand measures actual use and can reorder when supplies are low, allowing dealers to optimize inventory.
- **Comprehensive Reporting** – Two-way communication between each treater panel and Bayer CropScience distribution allows for real-time data retrieval to track lot numbers, batches, seed varieties and stock forecasting.
- **Service Benefits** – Users can communicate directly with the On Demand control panel using their personal computers or smartphones. This setup also allows for proactive technical support.
- **Stewardship** – On Demand offers product stewardship and package convenience for seed treaters. The system will only apply approved seed treatment recipes (co-development between Bayer CropScience and seed companies), which helps ensure Poncho®/VOTiVO® and all other Bayer CropScience seed treatments will be applied correctly and at labeled rates.

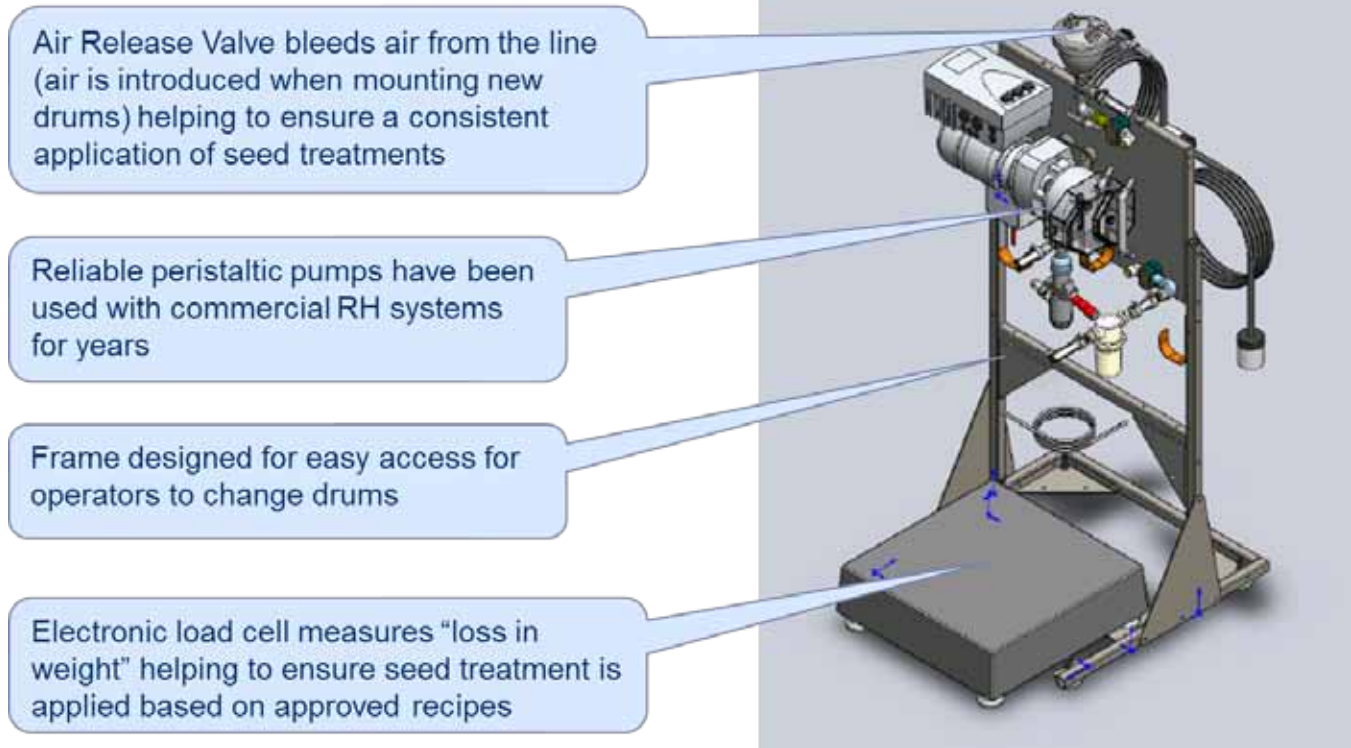
Customer Service

- Automated alerts at treatment locations sent to customer service for resolution
- After hours coverage (24/7) available to customers
- Automated Ticket System supports problem resolution by sending emails to problem solvers and customers. Includes knowledge base for frequently asked questions (FAQ).
- Technical support staff has more than 100 years of combined experience



Pump & Scale Station

ON DEMAND



Seed Treatment Delivery System



On Demand Website

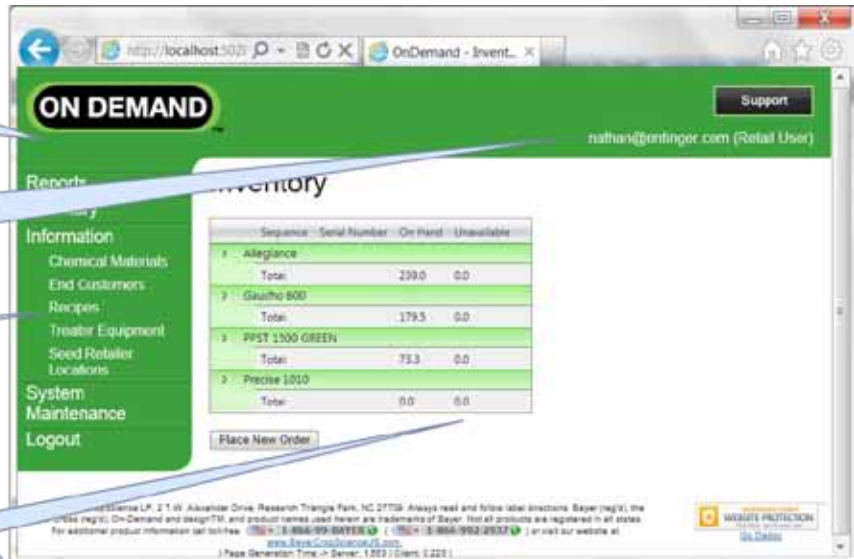
ON DEMAND

Designed to be intuitive and easy to use. Can be accessed via smart phones.

Security protocols prevents unauthorized access to customer information

Upload programs provided for maintaining customers, seed varieties and approved recipes prior to treatment season

Reports are designed to deliver valuable information "on demand"



- On Demand™ provides a rich amount of data that growers can use to better plan for future seasons and treaters can use to improve record keeping and inventory

An Innovative Business to Business Solution



New Equipment design

Compliance and Stewardship

- Reduce environmental and human exposure
- Recipes mutually agreed upon and uploaded by Bayer

Integrated services

- State of the art Business to Business communication
- Automated support and service notification

Accurate application

- Comparable to commercial systems

Reduce complexities and increase flexibility

- Customized formulations without developing custom blends
- Inventory management tool
- Streamlined invoicing

Attractive Value proposition for the treater

CBT LOSS IN WEIGHT SERIES

INDUSTRIAL BATCH SYSTEM

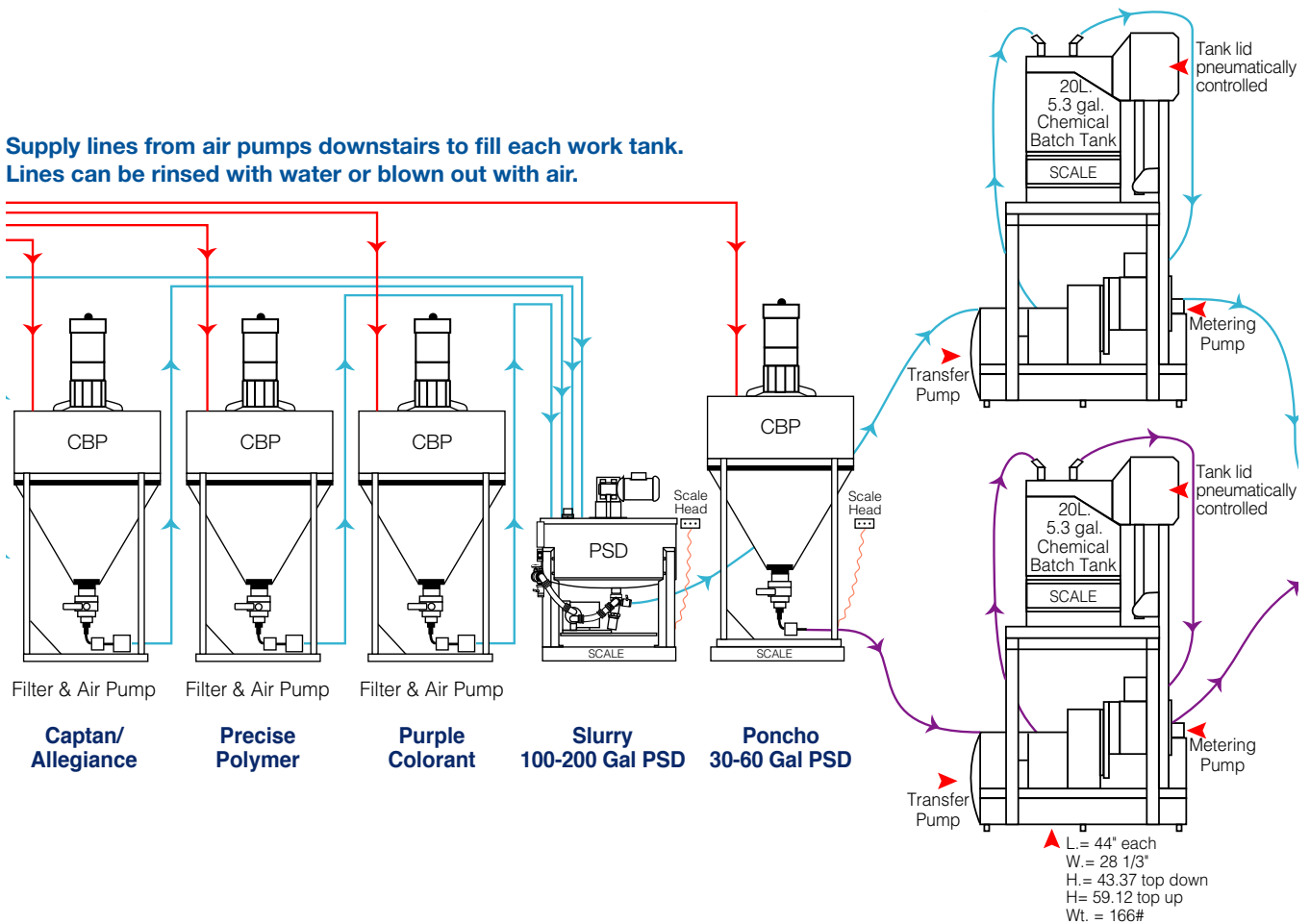
Theory of Operation

The Continuous Batch Treating System is PLC driven and operates on the weight of the seed and liquid chemical combined. Each treating cycle is based on a pre-determined time line sequence of events (refer to illustration on page 19). Each event is pre-set. If actual applied or measured level is higher or lower than the target level, the PLC will auto-adjust, for improved accuracy.

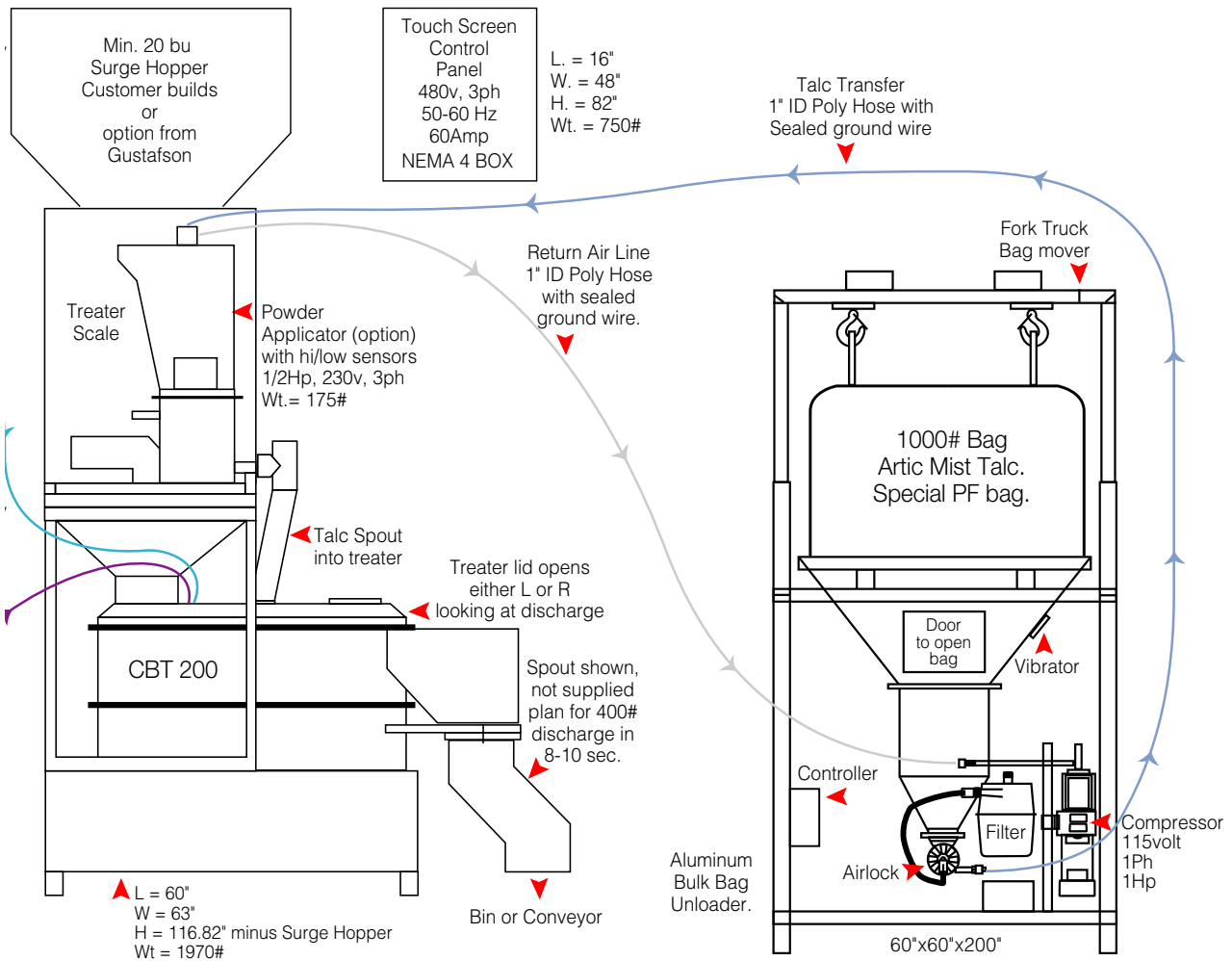
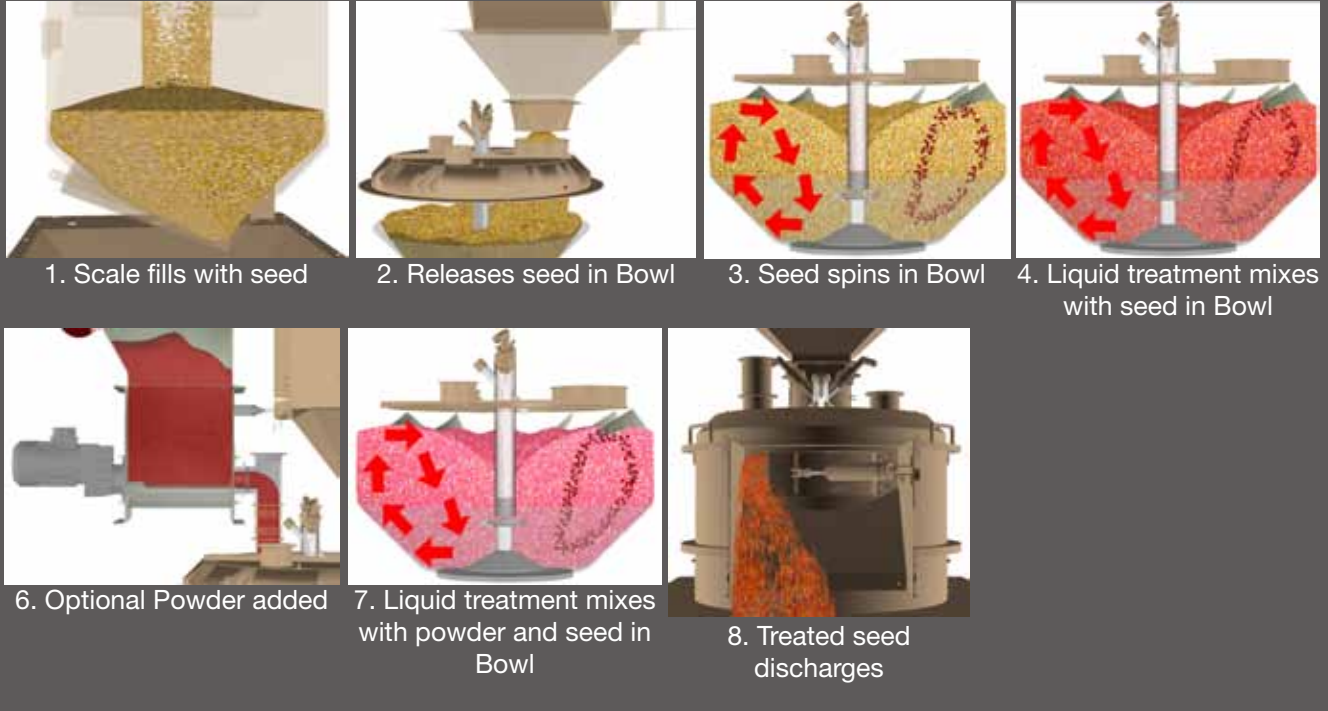
Liquid treatment is measured by a loss in weight pumping system, then atomized on the seed, to ensure uniform seed coverage. Loss-in-weight pump stations draw chemical from bulk or premix tanks and accurately weigh and dispense them to the CBT Treater. The amount of chemical dispensed is based on a pre-selected batch recipe, set up on the CBT control panel.

The treater PLC will automatically adjust the amount of chemical if there is a change in the seed weight, ensuring consistent chemical delivery for improved seed treatment accuracy.

Typical System Layout (reference only)



Time Line Sequence of Events...





CBT 25 LOSS IN WEIGHT INDUSTRIAL BATCH SYSTEM

Recommended for treating barley, canola, corn, cotton, soya, sugar beet, sunflower, vegetable and wheat seed



Automatic Slurry - Control Screen

- Automatic calibration of each product
- 20 liter mixing pump stations (up to 4)
- Automatic clean out retrieves product from pumps and PSD supply tanks (up to 4)
- Accumulation display of seed and chemical weight for each cycle
- PLC operates up to 4 Pump & Weighing Stations



Removable Bowl Cover

- Lifts up and swings out (R-L) for inspection, cleaning and servicing the Mixing Bowl
- Single mixing bowl, 25kg/1.25cuft



Integrated Aspiration System

Dust evacuation ports remove dust and chaff for improved treatment-to-seed coverage. Located on top of the Bowl Cover, on the side of the Discharge, on the bottom of the Weigh Basket frame and on the lid of the Optional Powder Feeder hopper.



Chemical Inlet

- Supports up to 4 Pump & Weighing Stations
- Removable for cleaning and maintenance

Treating Capacity

- Up to 6,000 lb/hr*

*Capacity based on a 60 pound bushel weight and a 30 second cycle using corn

Features & Benefits

- Multi-programmable PLC coordinates different seed types, fungicides, insecticides, order of application, and length of treating time.
- Industrial PC interface displays totals grams, target grams, actual grams and chemical percent accuracy.
- Auto messaging system relays information or questions about operation, last batch, alarms, low seed or chemical levels.
- Liquid treatment measured by a loss in weight pumping system, then atomized to ensure uniform seed coverage.

Treater Dimensions:

Height 81.74"

Length 47.63"

Width 45.00"

Value Added Options

- Remote control panel (45ft.)
- 60 gallon CBP tank
- Weigh Basket Auto Calibration
- Up to 2 dry powder applicators
- Internal print capabilities of total batches, batch size, and total kilograms treated for each treating period.
- Internal printer modem connection
- Internal color industrial touch operation or integration capability to existing network
- Specialty coating capabilities



CBT 50 LOSS IN WEIGHT INDUSTRIAL BATCH SYSTEM

Recommended for treating barley, canola, corn, cotton, soya, sugar beet, sunflower, vegetable and wheat seed



Automatic Slurry - Control Screen

- Automatic calibration of each product
- 20 liter mixing pump stations (up to 4)
- Automatic clean out retrieves product from pumps and PSD supply tanks (up to 4)
- Accumulation display of seed and chemical weight for each cycle
- PLC operates up to 4 Pump & Weighing Stations



Removable Bowl Cover

- Lifts up and swings out (R-L) for inspection, cleaning and servicing the Mixing Bowl
- Single mixing bowl, 50kg/2.45cuft



Integrated Aspiration System

Dust evacuation ports remove dust and chaff for improved treatment-to-seed coverage. Located on top of the Bowl Cover, on the side of the Discharge, on the bottom of the Weigh Basket frame and on the lid of the Optional Powder Feeder hopper.



Chemical Inlet

- Supports up to 4 Pump & Weighing Stations
- Removable for cleaning and maintenance

Treating Capacity

- Up to 12,000 lb/hr*

*Capacity based on a 60 pound bushel weight and a 30 second cycle using corn

Features & Benefits

- Multi-programmable PLC coordinates different seed types, fungicides, insecticides, order of application, and length of treating time.
- Industrial PC interface displays totals grams, target grams, actual grams and chemical percent accuracy.
- Auto messaging system relays information or questions about operation, last batch, alarms, low seed or chemical levels.
- Liquid treatment measured by a loss in weight pumping system, then atomized to ensure uniform seed coverage.

Treater Dimensions:

Height 81.74"
Length 47.63"
Width 45.00"

Value Added Options

- Remote control panel (45ft.)
- 60 gallon CBP tank
- Weigh Basket Auto Calibration
- Up to 2 dry powder applicators
- Internal print capabilities of total batches, batch size, and total kilograms treated for each treating period.
- Internal printer modem connection
- Internal color industrial touch operation or integration capability to existing network
- Specialty coating capabilities



CBT 100 LOSS IN WEIGHT INDUSTRIAL BATCH SYSTEM

Recommended for treating barley, canola, corn, cotton, soya, sugar beet, sunflower, vegetable and wheat seed



Automatic Slurry - Control Screen

- Automatic calibration of each product
- 20 liter mixing pump stations (up to 4)
- Automatic clean out retrieves product from pumps and PSD supply tanks (up to 4)
- Accumulation display of seed and chemical weight for each cycle
- PLC operates up to 4 Pump & Weighing Stations

Features & Benefits

- Multi-programmable PLC coordinates different seed types, fungicides, insecticides, order of application, and length of treating time.
- Industrial PC interface displays totals grams, target grams, actual grams and chemical percent accuracy.
- Auto messaging system relays information or questions about operation, last batch, alarms, low seed or chemical levels.
- Liquid treatment measured by a loss in weight pumping system, then atomized to ensure uniform seed coverage.



Removable Bowl Cover

- Lifts up and swings out (R-L) for inspection, cleaning and servicing the Mixing Bowl
- Single mixing bowl, 100kg/4.9cuft



Integrated Aspiration System

Dust evacuation ports remove dust and chaff for improved treatment-to-seed coverage. Located on top of the Bowl Cover, on the side of the Discharge, on the bottom of the Weigh Basket frame and on the lid of the Optional Powder Feeder hopper.



Chemical Inlet

- Supports up to 4 Pump & Weighing Stations
- Removable for cleaning and maintenance

Treater Dimensions:

Height 97.49"
Length 53.00"
width 51.00"

Treating Capacity*

- Canola:
24,000lb/hr
- Barley, Wheat, Cotton, Corn, Soya:
440bu./hr (12.0 M.T./hr)
- Sunflowers, Sugar Beets, Vegetables:
24,000lb/hr

*Capacity based on a 60 pound bushel weight and a 30 second cycle using corn

Value Added Options

- Remote control panel (45ft.)
- 60 gallon CBP tank
- Weigh Basket Auto Calibration
- Up to 2 dry powder applicators
- Internal print capabilities of total batches, batch size, and total kilograms treated for each treating period.
- Internal printer modem connection
- Internal color industrial touch operation or integration capability to existing network
- Specialty coating capabilities



CBT 200 LOSS IN WEIGHT INDUSTRIAL BATCH SYSTEM

Recommended for treating barley, canola, corn, cotton, soya, sugar beet, sunflower, vegetable and wheat seed



Automatic Slurry - Control Screen

- Automatic calibration of each product
- 20 liter mixing pump stations (up to 4)
- Automatic clean out retrieves product from pumps and PSD supply tanks (up to 4)
- Accumulation display of seed and chemical weight for each cycle
- PLC operates up to 4 Pump & Weighing Stations

Features & Benefits

- Multi-programmable PLC coordinates different seed types, fungicides, insecticides, order of application, and length of treating time.
- Industrial PC interface displays totals grams, target grams, actual grams and chemical percent accuracy.
- Auto messaging system relays information or questions about operation, last batch, alarms, low seed or chemical levels.
- Liquid treatment measured by a loss in weight pumping system, then atomized to ensure uniform seed coverage.



Removable Bowl Cover

- Lifts up and swings out (R-L) for inspection, cleaning and servicing the Mixing Bowl
- Single mixing bowl, 200kg/8.9cuft



Integrated Aspiration System

Dust evacuation ports remove dust and chaff for improved treatment-to-seed coverage. Located on top of the Bowl Cover, on the side of the Discharge, on the bottom of the Weigh Basket frame and on the lid of the Optional Powder Feeder hopper.



Chemical Inlet

- Supports up to 4 Pump & Weighing Stations
- Removable for cleaning and maintenance

Treater Dimensions:

Height 116.87"
Length 79.67"
Width 63.00"

Treating Capacity*

- Canola: 48,000lb/hr
- Barley, Wheat, Cotton, Corn, Soya: 880bu./hr (24.0 M.T./hr)
- Sunflowers, Sugar Beets, Vegetables: 48,000lb/hr

*Capacity based on a 60 pound bushel weight and a 30 second cycle using corn

Value Added Options

- Remote control panel (45ft.)
- 60 gallon CBP tank
- Weigh Basket Auto Calibration
- Up to 2 dry powder applicators
- Internal print capabilities of total batches, batch size, and total kilograms treated for each treating period.
- Internal printer modem connection
- Internal color industrial touch operation or integration capability to existing network
- Specialty coating capabilities

CBT UNITIZED VOLUMETRIC SERIES

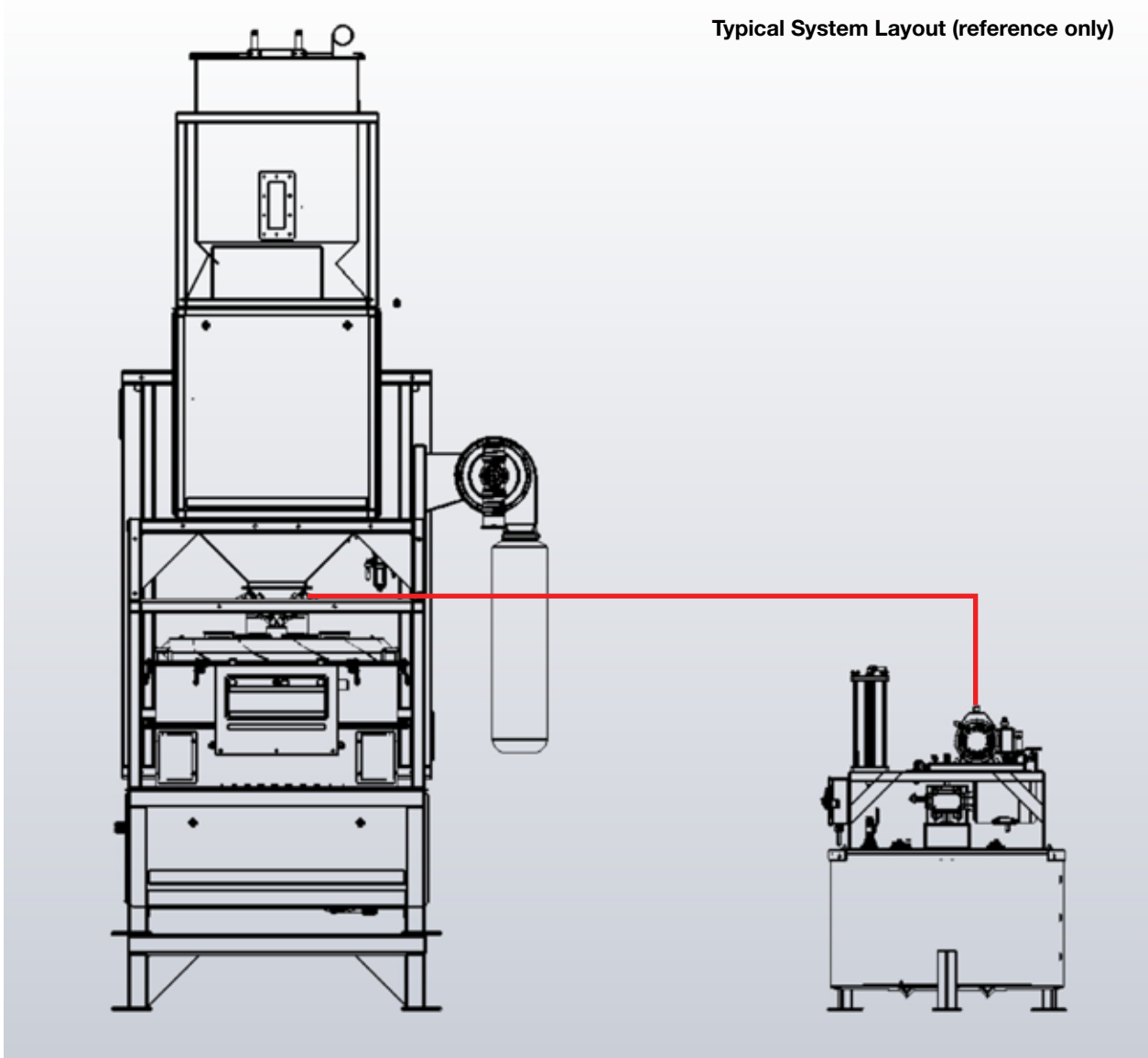
INDUSTRIAL BATCH SYSTEM

Theory of Operation

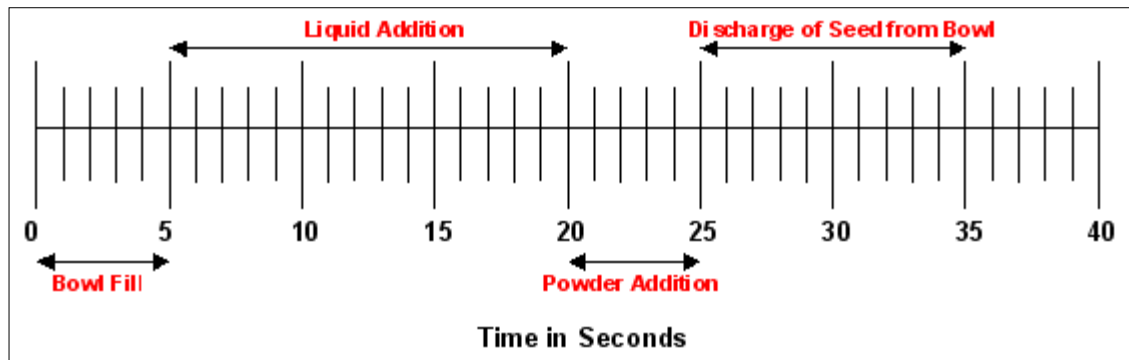
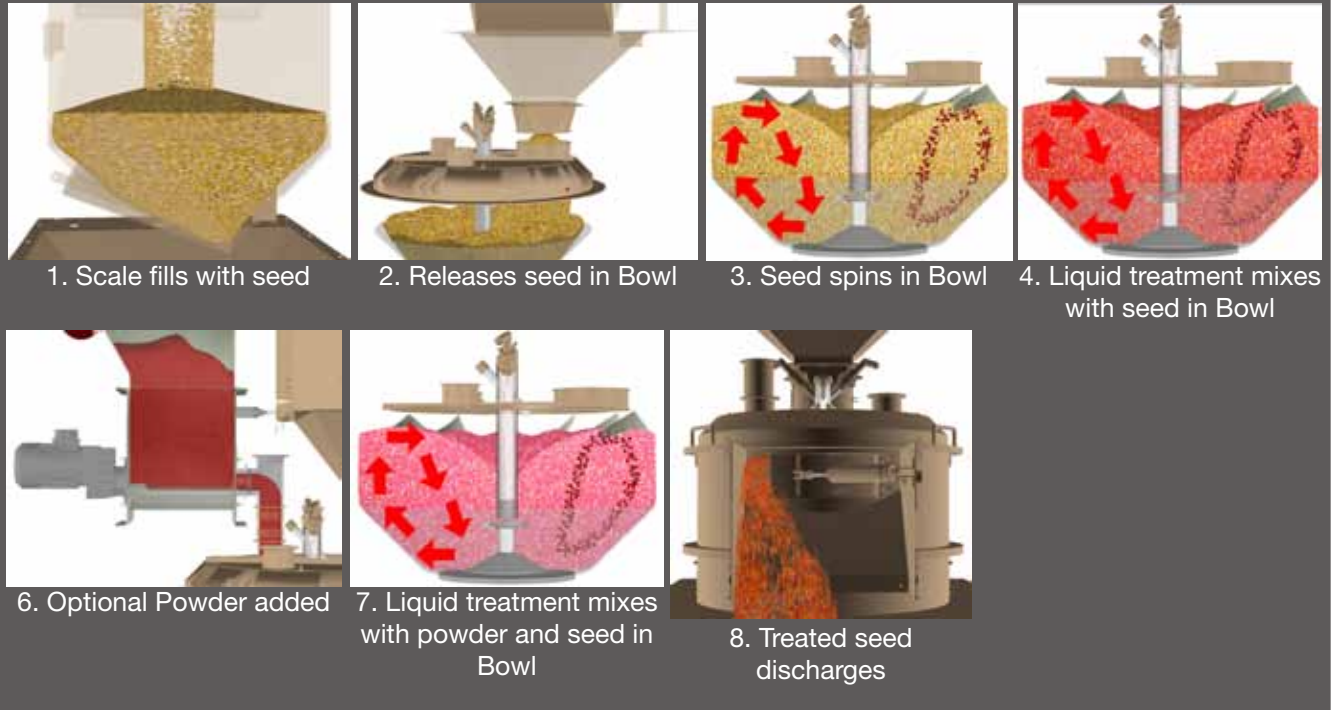
The Unitized Volumetric Continuous Batch Treating System is a simplified, self-contained, and packaged version of the CBT Loss in weight system. Also PLC driven, it operates on the weight of the seed and liquid chemical combined. Each treating cycle is based on a pre-determined time line sequence of events (refer to illustration on page 25). Each event is pre-set. If actual applied or measured level is higher or lower than the target level, the PLC will auto-adjust, for improved accuracy.

Liquid treatment is measured by volume (time and speed, refer to time line on p. 25), then atomized, ensuring thorough, uniform coverage on all seed types. The PLC transfers a slurry mixture from the LP300 Tank to the CBT Treater. The amount of chemical dispensed is based on a pre-selected batch recipe, set up on the CBT control panel. The treater PLC will automatically adjust the amount of chemical if there is a change in the seed weight, ensuring consistent chemical delivery for improved seed treatment accuracy.

Typical System Layout (reference only)

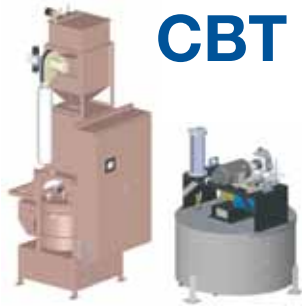


Time Line Sequence of Events...



Features & Benefits

- 25, 50 or 100KG Mixing Bowl
- Weigh Basket Auto Calibration
- One (1) 300 liter (80 Gallon) stainless premix tank w/agitation and IP dosing pump
- Closed Calibration
- Self contained dust evacuation system
- Inlet hopper with HI & LO level sensor
- Electronic Control Panel with input elevator control
- Multi-lingual enabled HMI touch screen
- PLC control coordinates different seed types, fungicides, insecticides, order of application, and length of treating time according to a pre-set recipe
- The auto messaging system relays information or questions about operation, last batch, alarms, low seed or chemical level
- Liquid treatment measured by time and speed, atomized to ensure uniform seed coverage



CBT 25 & 50 VOLUMETRIC UNITIZED INDUSTRIAL BATCH SYSTEM

Recommended for treating barley, canola, corn, cotton, soya, sugar beet, sunflower, vegetable and wheat seed



HMI Touch Screen

- Multi-programmable PLC
- Sequential time-ordered event recipes
- PLC controlled pump, weigh basket, mixing bowl
- Multi-lingual enabled



Integrated Aspiration System

- Dust evacuation ports remove dust and chaff for improved treatment-to-seed coverage.
- Self contained dust evac assembly
- Removable dust collection bag



Removable Bowl Cover

- Lifts up and swings out (R-L) for inspection, cleaning and servicing the Mixing Bowl
- Single mixing bowl, 25kg/1.25cuft or 50kg/2.45cuft



LP 300 Chemical Supply Tank

- Designed to mix treatment products requiring dilution or agitation and pumping it to the atomizer
- 300 liter (80 Gallon) Tank: stainless steel
- Tank Agitation Motor: 1hp/460V13ph60Hz
- Closed Calibration: 2950 mL (100 oz)
- Dosing Pump: IP HR pump kit, AC-VFD
- Drain Plug/Valve Assembly

Treater Dimensions:

Height: 3546mm (139.60")
 Length: 2058mm (81.03")
 Width: 1346mm (53.00")

Treating Capacity

- Up to 5.44 m.t./HR (12,000 lb/hr)*

*Capacity based on a 60 pound bushel weight and a 30 second cycle using corn

Features & Benefits

- Weigh Basket Auto Calibration
- Inlet hopper HI/LO level sensor
- Electronic Control Panel with input elevator control
- PLC control coordinates different seed types, fungicides, insecticides, order of application, and length of treating time according to a pre-set recipe
- Auto messaging system relays information or questions about operation, last batch, alarms, low seed or chemical levels.
- Liquid treatment measured by time and speed, then atomized to ensure uniform seed coverage.

Value Added Options

- Remote START/STOP (45ft.)
- Up to 2 dry powder applicators
- Internal print capabilities of total batches, batch size, and total kilograms treated for each treating period.
- Internal print modem - down load statistics into database
- Internal color industrial touch operation or integration capability to existing network
- Specialty coating capabilities



CBT 100 VOLUMETRIC UNITIZED INDUSTRIAL BATCH SYSTEM

Recommended for treating barley, canola, corn, cotton, soya, sugar beet, sunflower, vegetable and wheat seed



HMI Touch Screen

- Multi-programmable PLC
- Sequential time-ordered event recipes
- PLC controlled pump, weigh basket, mixing bowl
- Multi-lingual enabled



Integrated Aspiration System

- Dust evacuation ports remove dust and chaff for improved treatment-to-seed coverage.
- Self contained dust evac assembly
- Removable dust collection bag



Removable Bowl Cover

- Lifts up and swings out (R-L) for inspection, cleaning and servicing the Mixing Bowl
- Single mixing bowl, 100kg/4.9cuft



LP 300 Chemical Supply Tank

- Designed to mix treatment products requiring dilution or agitation and pumping it to the atomizer
- 300 liter (80 Gallon) Tank: stainless steel
- Tank Agitation Motor: 1hp/460V13ph60Hz
- Closed Calibration: 2950 mL (100 oz)
- Dosing Pump: IP HR pump kit, AC-VFD
- Drain Plug/Valve Assembly

Treater Dimensions:

Height: 3546mm (139.60")
 Length: 2058mm (81.03")
 Width: 1346mm (53.00")

Treating Capacity*

- Canola: 24,000lb/hr
- Barley, Wheat, Cotton, Corn, Soya: 440bu./hr (12.0 M.T./hr)
- Sunflowers, Sugar Beets, Vegetables: 24,000lb/hr

*Capacity based on a 60 pound bushel weight and a 30 second cycle using corn

Features & Benefits

- Weigh Basket Auto Calibration
- Inlet hopper HI/LO level sensor
- Electronic Control Panel with input elevator control
- PLC control coordinates different seed types, fungicides, insecticides, order of application, and length of treating time according to a pre-set recipe
- Auto messaging system relays information or questions about operation, last batch, alarms, low seed or chemical levels.
- Liquid treatment measured by time and speed, then atomized to ensure uniform seed coverage.

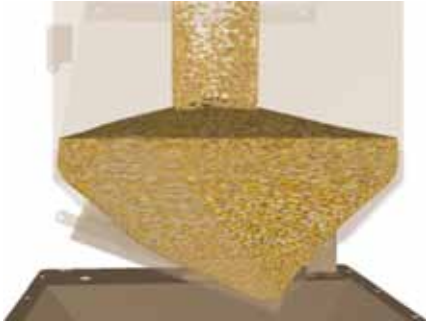
Value Added Options

- Remote START/STOP (45ft.)
- Up to 2 dry powder applicators
- Internal print capabilities of total batches, batch size, and total kilograms treated for each treating period.
- Internal print modem - download statistics into database
- Internal color industrial touch operation or integration capability to existing network
- Specialty coating capabilities

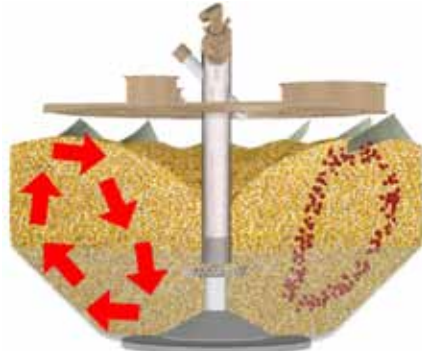
CBT 25 BASIC

INDUSTRIAL BATCH SYSTEM

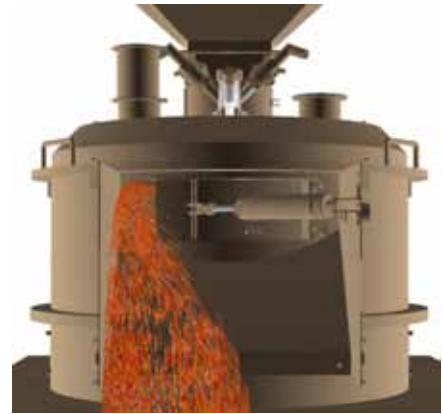
Theory of Operation



1. Fill the Inlet Hopper with seed



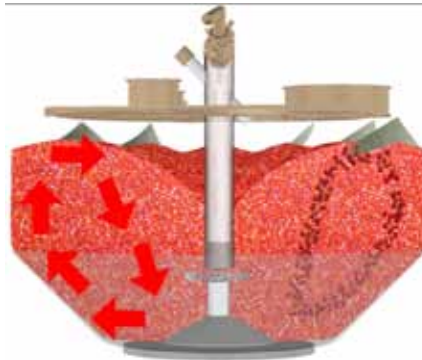
3. Seed spins inside Mixing Bowl



5. Treated seed discharges from the Mixing Bowl



2. Inlet Hopper releases seed into the Mixing Bowl



4. Liquid seed treatment mixes with seed inside the Mixing Bowl

CBT BASIC treating cycle is based on a pre-determined time line sequence of events.

Each event is pre-set from the factory and can be changed accordingly.

Each batch cycle will run, unless interrupted by pushing in the red E-STOP button. This will pause the batch cycle and resume to finish when the E-STOP button is pulled out or turning the VIBRATOR OFF.



CBT 25 BASIC INDUSTRIAL BATCH SYSTEM

Recommended for treating corn seed



Single Control Panel

- Atomizer motor
- Pump motor
- Bowl motor
- PLC Display Screen
- Bowl Speed Micro Tachometer Display
- 115VAC/1ph/60Hz/15amp



IP Pump & Drive Assembly

- Variable speed IP pump drive 20-650rpm
- IP element kit (1) #26 (4.1 - 135oz/min, water)
- IP element kit (1) #73 (6.8 - 270oz/min, water)
- IP element kit (1) #82 (13.5 - 440oz/min, water)



Chemical Inlet

- Quick disconnect



Filter Regulator

- Filter regulator with bracket
- 80psi
- Inlet gate control
- Discharge door control



Calibration System

- Portable balance scale
- Quick disconnect for calibration
- 250mL graduated beaker



Dust Evacuation System

- Dust filter bag kit
- Filter bag, 25 micron
- 150cfm, low pressure blower, 115V
- 16/3 - 115V male power cord (15ft)



Features & Benefits

- Ideal for treating corn seed by the single bag, one batch at a time.
- Single mixing bowl, 25kg/1.25cuft
- 50lb/25kg inlet hopper with finger guard
- Automated slide gate for batch treating
- Programmable PLC single control box, mounted
- Variable speed I/P pump drive 20-650rpm
- Pump drive control for easy operation
- Digital scale, graduated cylinder and quick disconnect pump element, for easy calibration

Treater Dimensions:

Height 86.36"
Length 51.88"
width 37.92"

Value Added Options

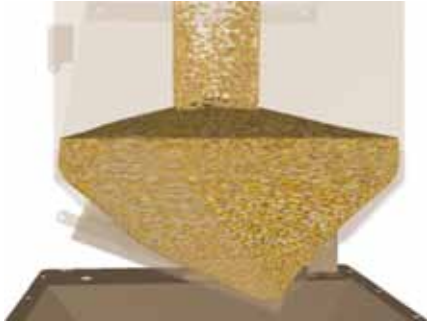
The Turnkey System

- Equipped with heavy-duty locking caster kit
- Dust evacuation system
- Filter bag, 25 micron
- 150cfm, low pressure blower, 115V
- Blower power cord, 15ft
- Chemical inlet wand with strainer, 20ft tubing

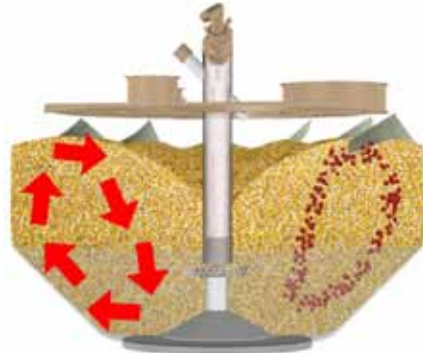
BMC

INDUSTRIAL BATCH SYSTEM

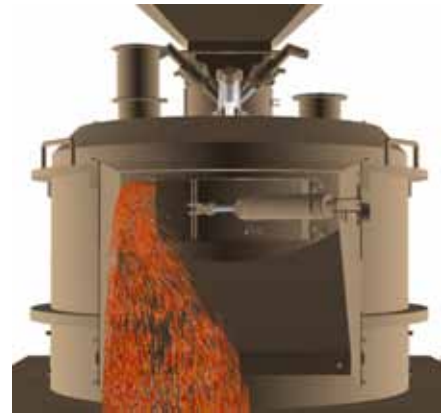
Theory of Operation



1. Fill the Inlet Hopper with seed



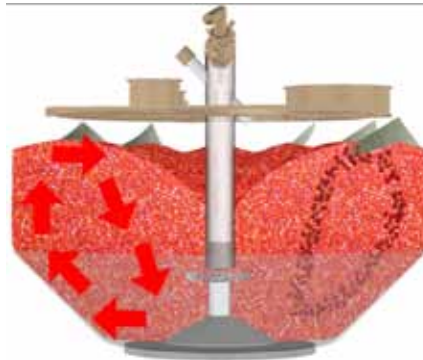
3. Seed spins inside Mixing Bowl



5. Treated seed discharges from the Mixing Bowl



2. Inlet Hopper releases seed into the Mixing Bowl



4. Liquid seed treatment mixes with seed inside the Mixing Bowl

BMC treating cycle is based on a pre-determined time line sequence of events.

Each event is pre-set from the factory and can be changed accordingly.

Each batch cycle will run, unless interrupted by pushing in the red E-STOP button. This will pause the batch cycle and resume to finish when the E-STOP button is pulled out or turning the VIBRATOR OFF.

The Batch Modular Coating (BMC) is designed for small seed lot treating and scaleup samples for commercial runs.

INDUSTRIAL BATCH SYSTEM

Recommended for treating alfalfa, canola, corn, sugar beet, sunflower seed and percent build-up

**Modular mixing bowls**

- Small (8oz-2lb)
- Medium (2-5lb)
- Large (5-10lb)

**Weigh Scale**

- Scale inlet hopper
- Precision balance scale
- Batch hopper

**Control Panel**

- Internal atomizer motor, 1/2 hp, 90V DC
- Pump motor, up to 2 pumps
- Bowl motor, 1/2 hp, 90V DC
- Optional Powder motor
- Vibrator motor
- PLC Display Screen
- Bowl Speed Micro Tachometer Display
- 115VAC/1ph/60Hz/15A

**Pump & Calibration System**

- Tank agitation GEAR MOTOR 115V TEFC 1/16hp
- L/S PUMP 115V with Control
- 100ml Closed Calibration

**Air Plumbing Assembly**

- Scale
 - Bowl discharge
 - Bowl purge
 - Bowl vent
- Air requirements: 80psi

**Treater Dimensions (automatic system):**

Height 86.36"
Length 51.88"
Width 37.92"

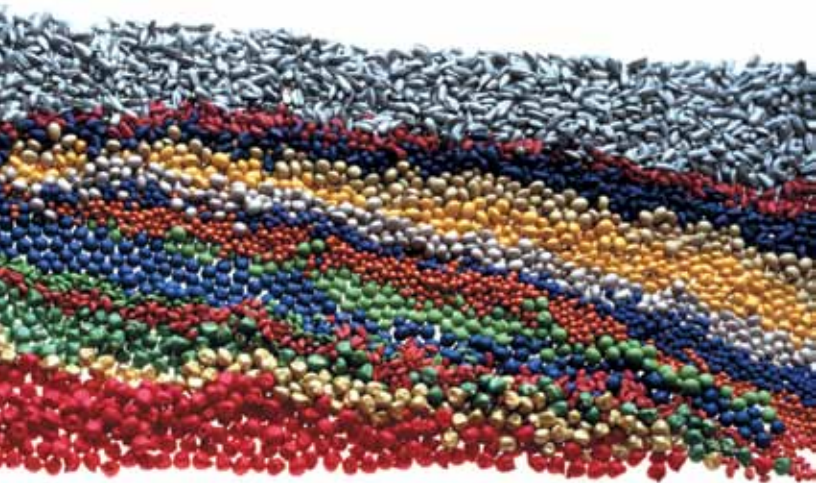
Features & Benefits

- Ideal for seed lot treating and scaleup samples of commercial runs
- Mechanical weighing scale
- Dust evacuation port
- Clear Bowl Cover
- Control Box with PLC
- Pump Controls
- Closed calibration pumps for accurate metering of liquid product
- Rolling Frame with locking casters
- Optional Dry Powder Applicator for drying and buildup powders

Value Added Option**Manual System**

- For setting up batch recipes
- Rolling table
 - Locking casters
 - Single mixing bowl: (S,M or L)
 - Single control panel





Bayer CropScience

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E-mail: equipment@bayer.com

Before using any crop protection product you should read and carefully follow directions, cautionary statements, and other information appearing on the product label. Our technical information is based on extensive testing and is, to the best of our current knowledge, true and accurate but given without warranty as the conditions of use and storage are beyond our control. Descriptions and property data of the product do not contain any statement as to liability for possible damage.

All capacities and system recommendations stated should be used only as a reference. Some variance will occur with different seed type & size, type of chemicals used, and accessories used after the point of chemical application.

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