Universal Coating Systems (UC Systems) is a company dedicated to manufacturing seed coating and treating equipment, a full line of seed coating and filmcoating polymers, and application technology services.

UC Systems currently manufactures a full line of rotary coaters, high volume drum treaters, vibratory dryers, and conveyors at our manufacturing facility in Pratt, Kansas.

UC Systems has two polymer manufacturing sites, one in Pratt, Kansas to serve the east coast and central plains regions, and our newest facility in Independence, Oregon to serve the west coast and intermountain west.

UC Systems staff has over 30 years of experience with equipment design, manufacturing and installation, on every continent on the globe. We have done everything from the smallest laboratory system to complete large scale seed pelleting plants.

What We Do

Our UNICOAT™ CCS centrifugal coating systems are made in chamber diameters from 12 inches up to 48 inches. The CCS systems are manufactured in our Pratt, Kansas facility where they have been built for the last 18 years. All CCS systems use the most modern PLC based electronic control packages available on the market today. All control systems use touchscreen operator interface technology. This allows for ease of system design and upgrade.

CCS systems are completely modular allowing the CCS equipment to be easily upgraded at any time. This includes changes to the PLC systems, or the pump and powder feeder delivery systems.

UC Systems also manufactures a complete line of vibratory dryers. These dryers are available in lengths of 24’, 30’, and 36’ lengths. They are supplied with an integrated burner blower package that uses either natural gas or propane fuel supplies.

To augment our line of coating systems and dryers, UC Systems also offers conveyor systems, bagging lines, powder feeders, and pumping options. Essentially we can offer any level of plant equipment the customer requires from a single piece to a complete turn-key operation.
CCS Rotary Systems

CCS Rotary Coaters

CCS rotary systems are manufactured in the US to the highest standards, to operate under the most severe manufacturing environments, and give years of trouble free operation. We use the most modern technology available on the market.

We have established a position in the market of building high quality indestructible equipment. Compare our systems to the competition and it will be obvious who builds the stronger system.

Our coating chamber walls are 7/8” thick cast steel, no other manufacturer comes close to that. Our chamber wall is cast in the US and machined to .005” before being delivered to our facility in Kansas where it is final ground and precision fit to the rotor assembly.

Each CCS unit is hand built by technicians who have years of rotary assembly experience. Our chamber has an integrated, replaceable, wear band that is custom fit to the side wall of the barrel and has a .002” gap with the rotor.

All CCS 2500, 3150, and 4800 use our (Q-DRIVE) belt drive system that is maintenance free and offers years of operational service.

We use Express Scale heads on the 3150 and 4800 units and build our own scale units on the 2500 units. All supporting scale components are US manufactured or fabricated in our manufacturing facility.

Automation

UC Systems is constantly working on new aspects of equipment systems automation from PLC based coating systems control, to loss in weight powder and liquid delivery systems for both of our seed processing systems CCS and GTS units. We are striving to be on the cutting edge of seed coating and treating systems technology. To fully address the automation control side of our systems, we work with several automation houses to bring the best and newest technologies into our system control inventory. All CCS and GTS systems are offered with PLC based control, and touch screen operator interfaces. Many systems that are now in the field are tailored to the customers’ unique requirements. With the automation technologies available today, it is easy to offer our customers a wide variety of custom automation options at a reasonable price. In today’s operational environment simple machine control is just the starting point for automation control systems, we are now required to interface with other operational systems, control satellite machinery, and start up and stop whole plant systems in conjunction with our coating equipment.
GTS Series High Output Seed Treating Systems

GTS 20 Series
The GTS 20 series machines are designed for today's high volume treatment requirements where accuracy of treatment application is critical. The GTS systems come in both standard and automated configurations.

All GTS systems offer the following features:
- High flow application chambers.
- High speed application atomizers heads.
- Quick release stainless steel chamber body.
- High volume variable speed drive peristaltic pump systems for accurate application of seed treatment materials.
- Low seed in-feed sensor.
- Variable pitch coating drum.
- GTS 20 units will process approximately 2000 bushels of soybean/corn product per hour.

GTS 10/20A Systems
The GTS-A (Automation) systems are based on the standard GTS units augmented with variable speed power feed seed wheel assemblies, and a complete automation package featuring PLC driven computer systems and operator touch screen interfaces. When coupled with the loss in weight tank options available with the GTS-A systems, the automation system offers automatic batch configuring and electronic flow control matching. This system allows the GTS-A operator to see a real-time readout of system performance in both alpha numeric mode* and a full real-time graphing mode of the systems application performance. (*in Automation Package #2)

GTS-A Power Feed Seed Wheel
The seed wheel is offered as part of the automation package. The seed wheel features a segmented wheel with 16 pockets of identical volume. The wheel is driven by a 1 Hp 90 volt PMDC motor that is monitored with an encoder interfaced with the PLC in the main control panel.

GTS-A Loss in Weight Tank System
The loss in weight tank system is available in 30 and 50 gallon poly and 27 and 60 gallon stainless steel tank versions. The loss in weight system is required with the Automation Package #2. All tanks are also available as standard tanks, without the load cells, when used with the GTS Automation Package #1. All tanks come standard with integrated mixing units, and all require plumbing fittings.

In the loss in weight configuration the tank can be refilled at any time without affecting the flow control management system. The computer will instantly recalibrate the system and continue all monitoring functions without any operator input.

GTS Operator Interface Options
There are two operational interface packages available for the GTS systems.

Automation Package #1
- 4" color touch screen operator interface with the following features:
  - Drum ON/OFF function with variable drum speed select.
  - Seed wheel ON/OFF function with variable speed select.
  - Pump ON/OFF function with variable speed select.
  - Pump priming and reverse function.
  - All pump functions available for two pumps per machine standard.
  - Pump calibration and reference file page.
  - Timer function page, on and off delay setting capabilities for seed wheel and pump systems.
  - Automatic cascading shutdown function for low seed sensing.
  - Built in seed flow calculator for ease of seed treatment calculation.
  - Seed flow totalizer weight readout, with preset function, allows operator to set system to treat predetermined amount and automatically shut down when the preset weight has been treated.
  - Totalizer can also be run in bypass mode to allow operator to keep track of total weight run without automatic shutdown function.

Automation Package #2
Includes all of the features of Package #1, plus:
- 12" color touch screen operator interface in place of the 4" touch screen.
- Loss in weight treatment delivery and monitoring system:
  - Using a PID control system the GTS loss in weight process keeps track of the seed delivery system, and matches it electronically to the seed treatment delivery system, to assure the correct amount of treatment is being applied to the seed.
  - This Automation Package #2 requires the purchase of the loss in weight tank system.
Along with our line of rotary coaters and bulk seed treating equipment UC Systems manufactures a complete line of satellite equipment; from equipment that interfaces directly with our coaters and treaters, to down stream systems, UC Systems offers a varied line of equipment to meet most of the support needs of today’s coating and treating production environment.

**Powder Feeders**
UC Systems manufactures a complete line of powder feeders for dry coating material applications. All feeders and components are manufactured in the US. The 1.5", 2", 3" and 4" feeders will soon be offered in loss in weight configuration, that will integrated with our CCS coating control system.

**Dryers**
UC Systems offers gravity based fluid bed drying systems and cooling beds in several size configurations. The drying systems are manufactured with integrated burners in one and two zone heating capability. The cooling bed units come with integrated fan units. As with all UC Systems equipment they are manufactured in the US. We also have these dryers in a refurbished model when used machines are available on the market. We send the units to our manufacturing facility where they are completely rebuilt and we then sell them with the same warranty as a new dryer. This can amount to a considerable savings to the customer.

**Conveyors**
We provide a complete line of conveyors for any system requirement.

**Bulk Tanks**
UC Systems manufactures a complete line of liquid delivery tanks, in a wide variety of capacities, in both poly and stainless steel, with fork lift stands. All the tanks are available with or without integrated mixers. If the customer requires, the tanks are also available on load cells for integration with our loss in weight system on our CCS or GTS equipment.

**Pumps**
UC Systems has worked with Masterflex pump systems for the past 18 years and we have become very familiar and confident with their equipment. Masterflex equipment holds up well in all manufacturing situations with very few maintenance requirements.
The UNICOAT™ and AQUACOAT™ proprietary polymer systems have been used to coat multiple millions of pounds of seed, both as filmcoating and seed pelleting applications.

UNICOAT™ polymers are made in high concentration form and are sold as a 3:1 mixture formulation, meaning that one gallon of polymer is mixed with 3 gallons of water to make 4 gallons of usable solution. This allows us to ship the customer more workable gallons of solution per truck load, making your cost per gallon, including freight lower. UNICOAT™ polymers are available in many color offerings as well as our newly trademarked “NUDE™” color, giving the coating material product a natural seed appearance.

UC Systems also has the capability of custom blending colorants for specialized customer requirements. Custom blending can be done on bulk order amounts of 250 gallons or more.

The slide in Figure 1 compares coatings of UNICOAT™ (left) and competitors coating (right). UNICOAT™ provides a smooth, even, coat significantly reducing “dusting off”. The competitors loss (dust-off) appears to be nearly 30% of the coating.

The slide in Figure 2 compares UNICOAT™ with lime/polymer coating after wetting. UNICOAT™ has significant coat coverage, and will stay on the seed where it is needed, and not in the bag as waste.
In answer to today’s water conscious environment, UC Systems has developed AQUACOAT™. This seed coating polymer system has a highly absorptive material incorporated within the polymer matrix. This material is capable of holding 400-600 times its weight in water. The absorbent material in AQUACOAT™ is capable of rehydrating many times allowing the seed to make the most use of each water application event. Unlike the competition, AQUACOAT’s absorptive materials are incorporated within every coated seed during the coating process. The competitor’s materials are added during the coating process as a powder, where distribution is poor at best, giving normally no more than 60% seed coverage. Much of that 60% will fall off after application and during planting and not be available to the seedling during germination. With AQUACOAT™ you can be sure that what you applied is fully part of each and every coated seed, EVERY TIME!

AQUACOAT™ as shown in Figure 3 is a unique polymer that is completely nontoxic and odorless. As water comes into contact with AQUACOAT™, the water-insoluble matrix expands, encapsulating the seed within a moisture rich environment.

The Figure 3 slide of AQUACOAT™ is taken 18 hours after the seed wetting process. The super-absorbency of this polymer allows the seedling to survive for much longer periods between water application events.

Figure 3. AQUACOAT™