AEC is a privately held group of companies specializing in industrial and electrical design, engineering, fabrication and manufacturing solutions for customers all over the world. Based out of St. Charles, Iowa, AEC operates a 50,000 square foot manufacturing facility and employs over fifty team members.

HISTORY

1981 – Applied Electronics Corporation (AEC) was formed and began providing electrical controls, electrical installations and fire control panels to the seed industry.

1999 – AEC purchased the assets of Seed and Grain Systems. Seed and Grain Systems provided project management services, custom steel manufacturing and construction management for over 26 years.

2000 – AEC began developing a better small batch corn sheller.

2001 – AEC purchased Campbell Dryer. Campbell Dryer provided dryers to the seed industry with over 50 years of service.

2001 – AEC introduced its industry leading small batch sheller prototype at ASTA.

2001 – AEC purchased Agro Globe Engineering. Agro Globe provided project management services to the seed industry for over 10 years of service.

2003 – AEC purchased Custom Seed. Custom Seed provided custom seed equipment to the seed industry for over 21 years.

2015 – AEC has been serving global customers for over 30 years. If you are one of our many customers, we’d like to thank you for your business. Every one of our team members at AEC believes in putting you, our customer first. We appreciate and look forward to the opportunity to work with you on your next project.

AEC SALES & SUPPORT
(641) 396-2716 Office
(641) 396-2635 Fax
sales@aec-corp.com
www.aec-corp.com

AEC EUROPE SALES & SUPPORT
Gabriel Gheorghe
+40 730 170 182
ggheorghe@aecenterprises.com

OVER 30 YEARS
As Seed Industry Leaders

BULK BAGGER
• Net weigh design for rapid weighment during bag placement
• Automatic feed system cutoff at desired bag weight
• Lift arms for bag loading and unloading operations
• Adjustable bag holders and concentric inlet spout
• Strap arms stretch bags to improve filling
• Inflatable bag spout adapter seals inlet during fill cycle
• Adaptable to fill either bulk bags or pallet boxes

These units were designed to meet increasing demand for large volumes of bulk seed products. Product can be supplied from an overhead bin, spout, or variable speed conveyor. Seed is weighed in the internal hopper during bag placement, increasing bag throughput compared to traditional methods. The pneumatic lift arms lower the spout assembly to a convenient position for bag attachment, then raise bag to the fill position. Strap arms with adjustable cantilevered loop holders pull the bag to an open position to promote better filling, and an inflatable concentric spout seals the inlet and removes air during the fill cycle. The bag is lowered to an optional pallet conveyor after filling, and the weigh cycle is automatically repeated. The entire process can be monitored using a graphical display panel, and the internal PLC controls are expandable to synchronize external conveying devices.

REBAG SYSTEMS
• Systems for emptying bags and boxes
• Free standing or integrated applications
• Platforms for depalletizing or bag access
• Knife boxes for cutting of seed bags
• Dust collection hoods and grates
• Multiple discharge designs

Rebag systems include equipment for unloading seed from conventional bags, large bulk bags, or pallet boxes. Unloading hoppers, access platforms and knife boxes are available to meet specific local requirements.

DUST FILTER UNITS
• Passive cloth filters and cyclone dust collectors
• Cyclones available in multiple diameters
• Modular filter units adapt to a range of airflow volumes
• Filter bags in 9”, 12”, and 24” diameters
• Zipper bottom or open end bags for outlet hoppers
• Optional outlet transitions, airlocks and bin activators

Dust collectors are used to remove nuisance dust from exhaust air. Cyclone type collectors are simple, low cost units which separate heavy dust particles by centrifugal force. Passive bag filters use oversize cloth bags to filter dusty air, and operate at higher efficiencies than centrifugal separators. Both types are sometimes used in series when handling extremely dusty air or large particulate material such as cobs.
SIDES MOUNTED SINGLE LIDS
- Used for ear corn and other bulky products
- Drive through access for large trucks
- Permits opening truck prior to raising lid
- Large unrestricted unloading area
- Pre-assembled remote mounted hydraulic pump
- Dual speed electric or manual controls
- Adaptable to belt or vibratory conveyors
- Optional dump channels for new or retrofit installation

Trucks drive between the link arms in the closed position then the rear doors of the truck can be opened prior to raising the lid. The linkage arms raise the lid from the closed position pouring the seed on top of the lid into the unloading conveyor. The lid continues upward into the top position where it serves as a backstop during the rest of the unload cycle. The lids are available in either 5’- 6” or 7’- 6” widths and standard lengths up to 14’- 0”.

END MOUNTED DOUBLE LIDS
- Used for shelled corn and other granular products
- Rear, center, or side unloading trucks
- Solid pit cover to reduce contamination
- “Mass flow” unloading for dust control
- Open design eliminates plugged grates
- Outlet hoppers with remote flow controls
- Removable linkage access covers
- Easy access for cleaning and maintenance
- Adaptable to most types of unloading conveyors

End mounted lids are typically used for granular product receiving in lieu of conventional dump grates. The system consists of a bi-parting hydraulic dump lid located between two stationary linkage guards. The truck is centered over the lid and the linkage arms raise the doors to form a V-shaped hopper enclosed on all four sides. This eliminates the wooden frames typically used to enclose most open receiving grates and permits “mass flow” unloading on hopper bottom and similar trucks. Electrical hopper controls provide remote operation of dump lid position and material flow rate. A variety of hopper styles are available to adapt the dump lids to different unloading conveyors.

In addition to the designs shown, we also fabricate many traditional styles of unloading doors, pit grates and dump hoppers to suit specific requirements.

CUSTOM HOPPERS, TRANSITIONS AND VALVES
- Design and fabrication of custom hoppers and fittings
- Configurations for most inlet and outlet requirements
- Custom directional valves, spouts and ductwork

Most seed facilities require a wide variety of custom hoppers and fittings to connect equipment from different vendors or for installation in confined areas. AEC personnel have extensive experience with custom fittings and can custom design and build to suit your requirements.
SINGLE PASS REVERSING DRYER – Similar to a traditional single pass unit with the exception that heated air from the fan is reversed from upward air to downward air in the middle of the drying process. This reduces variations in moisture content of the bin load and tends to increase the energy efficiency compared to a conventional single pass unit.

The system is designed to utilize standard external blowers or internally mounted plenum fans. Air door configuration allows simple one step reversal of each bin from the ground level. The integral ductwork design simplifies sidewall sheeting installation. Dryers can also be equipped with optional partial air recirculation to reduce heating fuel requirements during cool weather operation.

AEC takes great pride in making almost every component in our steel dryers. From the individual panels to the fire control panels, we ensure that every piece that leaves our door is inspected to meet our strict quality control standards. AEC drying systems will improve the quality of your product, reduce your start up cost and decrease overall drying cost.

ADVANTAGES
Reduced air handling problems - AEC’s unique air plenum design reduces air handling problems inherent in many other systems. The blending chamber, air passage and balanced inlet design provide more uniform air temperature and velocity throughout the bin. Drying air is exhausted through an independent exhaust port eliminating the potential for uncontrolled moist air recirculation into fan inlet. Fill doors can also be closed during normal operation.

- Independent bin fans and burners
- Consistent dryer control
- Cyclonic air blending systems
- Unique balanced air plenum
- Extended air travel distance
- Pivoting air diverter control
- Easy one step air reversal
- Separate fill and exhaust ports
- Eliminates recirculation
- Can use single bins as necessary
- Can be expanded at any time
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Standard burner designs are available for natural gas, propane or fuel oil heat. Gas trains and state of the art fire control systems are assembled in our electrical shop, which is UL listed for flame management systems. Our fire control panels and modulation systems ensure that energy efficiency is always achieved thus reducing operating cost.

Available options include powered doors, upgraded controls, and computerized data acquisition systems.

AEC SHELLERS AND PRECLEANER - Used in seed corn production facilities throughout the world, the AEC series of production shellers are the industry standard. No other sheller can compete with the integration of AEC’s high level of production and minimal seed damage. Our shellers are built to last and are easily maintained.

The inlet surge hopper is filled with dried ear corn and the sheller rotor automatically draws product into the bar cage. Gentle processing of product is accomplished by corn-on-corn and corn-on-cob shelling action. Shelled corn exits through the bottom of the sheller and cobs from the cob discharge door.

AEC style precleaners utilize an integrated ball rack style screen system. Seed is first passed over a set of scalping screens and then flows over a set of sifting screens. Multiple aspiration ports allow for excellent removal of dust and fines. Multiple precleaner set-ups are available to fit in many types of sheller buildings. Custom screen perforations are also available.

Available options include powered doors, upgraded controls, and computerized data acquisition systems.

<table>
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<th>Model</th>
<th>Capacity BU/HR</th>
<th>Capacity MT/HR</th>
<th>Motor HP</th>
<th>Minimum CFM</th>
<th>FLA @ 460/3/60 HZ</th>
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ADVANTAGES

Higher efficiency - Double pass dryers are more efficient since exhaust air always passes through high moisture seed prior to being vented to the atmosphere; this air is much closer to maximum saturation than air leaving a single bed of nearly dry seed. A given volume of air will remove more moisture if allowed to become fully saturated making better usage of expensive heated air. This system is necessary when large airflows are used to avoid incurring enormous drying costs.

Less seed damage - Warm air passes through dry seed first, picking up moisture. The resulting evaporative cooling reduces the air temperature below 95 degrees, which is generally considered safe for higher seed moisture. This tempering allows the use of air temperatures up to 110 degrees to finish drying the seed quickly without subjecting the seed to damaging temperatures at high moistures.

More dryer control - Bypass doors valve air from the upper to lower tunnels allowing the operator to adjust for imbalanced bin numbers and to reheat the lower air to the maximum safe temperature for high moisture seed.

HS88 SHELLER AND 3SC3000 TWIN DRUM CLEANER

This state of the art sheller and precleaner unit provides the best possible solution in the industry against shelling and cleaning problems related to excessive shanks, corn tips, cobs and trash.

This unit combines our industry proven sheller, the HS88, and our innovative twin drum cleaner. Based on customer feedback and the changing seed corn hybrids, we have developed the twin drum precleaner to improve scalping performance and reduce excessive screen wear. This solution will help to eliminate scalp screen plugging and improve the quality of your product. This means less man hours cleaning screens and a more continuous flow.

The inlet surge hopper is filled with dried ear corn and the sheller rotor automatically draws product into the shelling cage. Gentle processing of product is accomplished by corn-on-corn and corn-on-cob shelling action. Cobs exit through the adjustable cob discharge door. Shelled corn exits through the bottom of the sheller and is distributed across a heavy duty inlet pan on the precleaner.

Once in the precleaner, shelled corn flows past an adjustable aspiration port that is designed for large discard and dust removal. After initial aspiration, product flows across the initial top scalping screen for additional large discard. Seed that does not initially pass through the first scalping screen is directed into the twin drums. The rotating twin drums remove excessive shanks, corn tips, and any other discard from the corn. Product is then distributed across the lower sets of sifting screens for small discard and past final aspiration for additional dust and light product removal. After final aspiration, good seed is discharged.

Specifications

- Best solution for excessive shanks and discard problems
- 2000 bushel per hour capacity
- Sheller motor size: 40 HP
- Cleaner motor size: 7.5 HP
- Two twin drum motors: .5 HP each
- Requires 10,000 CFM of aspiration airflow

Standard Equipment

- Right or left hand adjustable inlet damper
- Right or left hand carburetor doors on cleaner
- Tensioned cob discharge damper
- Scalping and sifting discard chutes
- Solid weld shelling cage assembly

Optional Equipment

- Aspiration fan (25 HP, 10,000 CFM)
- 2:1 aspiration manifold and plenum extension
- Clean corn discard chute
- 50 Hz motor available
- Ear corn surge hopper for sheller
- UL approved control panel

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Fan & Burner Systems

AEC FAN/BURNER SYSTEMS – AEC is an industry leader in the manufacturing of highly efficient, safe, and easy to use fan burner systems. Pre-assembled fan burner packages provide many advantages over custom field built designs including ease of purchase, quick installation, higher levels of efficiency, improved documentation and professional technical support. AEC uses only the highest quality components and state of the art controls. Our units are modular and tested prior to shipment to reduce installation time and can be configured to meet local requirements. In addition to standard fan burner packages, we also provide gas trains, burners, and controls for conventional field assembled burner house designs. Standard preassembled gas trains are available for burners up to 30,000,000 BTU. Our shop is UL listed for flame management systems where we build and test standard and custom gas trains and fire control systems. AEC fire control panels feature a modulation system that is connected to the controller to safely and efficiently control the burner. An adjustable high temperature limit is incorporated to protect against overheating. In addition, pressure switches safeguard the gas train against excessive or inadequate gas pressure.

FEATURES

- Industry leading fail safe features
- Pre-assembled modular fan/burner packages
- AMCA certified blowers
- Multiple sizes, types and arrangements
- Multiple motor sizes and blower wheel speeds
- Natural gas, propane, fuel oil, or electric heat
- Factory installed and tested gas trains and controls
- Support for most international electrical supplies
- Microprocessor based temperature controls
- Split burners for maximum turndown available
- Includes documentation and wiring schematics
- Available telephone and on-site technical support
- Designs for IRI, UL, CSA, and other standards
- Custom paint available

Automation Controls - PLC - UL Electrical Panel Design

Automation Controls and Integration - AEC has years of experience developing automation, data collection, programmable logic control (PLC) and process control systems for industrial, commercial, and manufacturing clients all over the world. AEC automation and process systems are designed to control a wide variety of machinery, systems and processes. From simple upgrades to entire system integration, AEC can design, manufacture, and implement projects of any scope. Our automation can provide leading edge solutions which can help our customers improve in areas such as: efficiency, productivity, quality and safety. AEC has been designing, manufacturing, automating processes and electrical control panels since 1981. We can design your next project or help upgrade an aging system.

The Past, Present, and Future in AEC PLC and Process Controls – As technology advances, so has the need for more innovative solutions in automation. New PLC designs allow for streamlined integration and often allow for compatibility with existing systems. Communication across a wide range of protocols allows us to add even more flexibility and process control than ever before.

Do you want the ability to monitor and control your process from anywhere? This is becoming more and more common. Almost any project can be controlled and monitored remotely. Critical data collection records can be recorded automatically for extremely accurate monitoring. Real-time temperature, pressure, humidity, and many other kinds of data can be monitored and recorded anytime and from anywhere. It is a common misconception that a complete overhaul to an existing system is required in order to achieve these capabilities. Many times, this is not the case. AEC can often use existing systems, wiring, and PLC’s when implementing upgrades. This greatly reduces time and cost.

Are you just modifying your process? AEC has the ability to program and interface with systems old and new. So if you have a system that works for you, we can help modify existing programs and applications.

Electrical Panel Design - AEC's panel shop builds a wide variety of UL listed panels to suit the needs of our customers. If an upgrade to an existing system or components is needed, AEC can develop and manufacture panels using a customer design or we can design a complete package based on our customer’s requirements. We also have existing panel designs which can be applied to your application.

Our expertise is in the design and development of panel solutions for industrial and manufacturing applications (on-machine controls, material handling systems, process control, etc). Not only will AEC provide customer support during the initial design phase, but also onsite installation, testing, and continued customer support.

Onsite/Online Support, Troubleshooting, and Replacement Parts – AEC provides onsite support, troubleshooting and replacement parts. To help reduce downtime and help solve problems quickly, most all AEC systems can be equipped with remote access to allow system access by our staff. By providing this in-depth level of customer support, we can help diagnose problems remotely and get you back running quickly.
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**Features**

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Specifications

• Best solution for excessive shanks and discard problems
• 2000 bushel per hour capacity
• Sheller motor size: 40 HP
• Cleaner motor size: 7.5 HP
• Two twin drum motors: .5 HP each
• Requires 10,000 CFM of aspiration airflow

Standard Equipment

• Right or left hand adjustable inlet damper
• Right or left hand carburetor doors on cleaner
• Tensioned cob discharge damper
• Scalloping and sifting discard chutes
• Solid weld shelling cage assembly

Optional Equipment

• Aspiration fan (25 HP, 10,000 CFM)
• 2:1 aspiration manifold and plenum extension
• Clean corn discard chute
• 50 Hz motor available
• Ear corn surge hopper for sheller
• UL approved control panel
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Fill doors can also be closed during normal operation.

- Independent bin fans and burners
- Consistent dryer control
- Cyclonic air blending systems
- Unique balanced air plenum
- Extended air travel distance
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- Can be expanded at any time

Standard burner designs are available for natural gas, propane or fuel oil heat. Gas trains and state of the art
fire control systems are assembled in our electrical shop, which is UL listed for flame management systems. Our fire control panels and modulation systems ensure that energy efficiency is always
achieved thus reducing operating cost.

Available options include powered doors, upgraded controls, and computerized data acquisition systems.

AEC SHELLERS AND PRECLEANER - Used in seed corn production facilities throughout
the world, the AEC series of production shellers are the industry standard. No other sheller can compete
with the integration of AEC’s high level of production and minimal seed damage. Our shellers are built to last
and are easily maintained.

The inlet surge hopper is filled with dried ear corn and the sheller rotor automatically draws product
into the bar cage. Gentle processing of product is accomplished by corn-on-corn and corn-on-cob
shelling action. Shelled corn exits through the bottom of the sheller and cobs from the cob discharge door.

AEC style precleaners utilize an integrated ball rack style screen system. Seed is first passed over a set of
scraping screens and then flows over a set of sifting screens. Multiple aspiration ports allow for
excellent removal of dust and fines. Multiple precleaner set-ups are available to fit in many types of
sheller buildings. Custom screen perforations are also available.

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity BU/HR</th>
<th>Capacity MT/HR</th>
<th>Motor HP</th>
<th>Minimum CFM</th>
<th>FLA @ 460V/3/60 Hz</th>
<th>FLA @ 380V/3/50 Hz</th>
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</table>
SIDE MOUNTED SINGLE LIDS

- Used for ear corn and other bulky products
- Drive through access for large trucks
- Permits opening truck prior to raising lid
- Large unrestricted unloading area
- Pre-assembled remote mounted hydraulic pump
- Dual speed electric or manual controls
- Adaptable to belt or vibratory conveyors
- Optional dump channels for new or retrofit installation

Trucks drive between the link arms in the closed position then the rear doors of the truck can be opened prior to raising the lid. The linkage arms raise the lid from the closed position pouring the seed on top of the lid into the unloading conveyor. The lid continues upward into the top position where it serves as a backstop during the rest of the unload cycle. The lids are available in either 5’-6” or 7’-6” widths and standard lengths up to 14’-0”.

END MOUNTED DOUBLE LIDS

- Used for shelled corn and other granular products
- Rear, center, or side unloading trucks
- Solid pit cover to reduce contamination
- “Mass flow” unloading for dust control
- Open design eliminates plugged grates
- Outlet hoppers with remote flow controls
- Removable linkage access covers
- Easy access for cleaning and maintenance
- Adaptable to most types of unloading conveyors

End mounted lids are typically used for granular product receiving in lieu of conventional dump grates. The system consists of a bi-parting hydraulic dump lid located between two stationary linkage guards. The truck is centered over the lid and the linkage arms raise the doors to form a V-shaped hopper enclosed on all four sides. This eliminates the wooden frames typically used to enclose most open receiving grates and permits “mass flow” unloading on hopper bottom and similar trucks. Electrical hopper controls provide remote operation of dump lid position and material flow rate. A variety of hopper styles are available to adapt the dump lids to different unloading conveyors.

In addition to the designs shown, we also fabricate many traditional styles of unloading doors, pit grates and dump hoppers to suit specific requirements.
AEC is a privately held group of companies specializing in industrial and electrical design, engineering, fabrication and manufacturing solutions for customers all over the world. Based out of St. Charles, Iowa, AEC operates a 50,000 square foot manufacturing facility and employs over fifty team members.

**HISTORY**

1981 – Applied Electronics Corporation (AEC) was formed and began providing electrical controls, electrical installations and fire control panels to the seed industry.

1999 – AEC purchased the assets of Seed and Grain Systems. Seed and Grain Systems provided project management services, custom steel manufacturing and construction management for over 26 years.

2000 – AEC began developing a better small batch corn sheller.

2001 – AEC purchased Campbell Dryer. Campbell Dryer provided dryers to the seed industry with over 50 years of service.

2001 – AEC purchased Agro Globe Engineering. Agro Globe provided project management services to the seed industry for over 10 years of service.

2003 – AEC purchased Custom Seed. Custom Seed provided custom seed equipment to the seed industry for over 21 years.

2015 – AEC has been serving global customers for over 30 years. If you are one of our many customers, we’d like to thank you for your business. Every one of our team members at AEC believes in putting you, our customer first. We appreciate and look forward to the opportunity to work with you on your next project.

**BULK BAGGER**

- Net weigh design for rapid weightment during bag placement
- Automatic feed system cutoff at desired bag weight
- Lift arms for bag loading and unloading operations
- Adjustable bag holders and concentric inlet spout
- Strap arms stretch bags to improve filling
- Inflatable bag spout adapter seals inlet during fill cycle
- Adaptable to fill either bulk bags or pallet boxes

These units were designed to meet increasing demand for large volumes of bulk seed products. Product can be supplied from an overhead bin, spout, or variable speed conveyor. Seed is weighed in the internal hopper during bag placement, increasing bag throughput compared to traditional methods. The pneumatic lift arms lower the spout assembly to a convenient position for bag attachment, then raise bag to the fill position. Strap arms with adjustable cantilevered loop holders pull the bag to an open position to promote better filling, and an inflatable concentric spout seals the inlet and removes air during the fill cycle. The bag is lowered to an optional pallet conveyor after filling, and the weigh cycle is automatically repeated. The entire process can be monitored using a graphical display panel, and the internal PLC controls are expandable to synchronize external conveying devices.

**REBAG SYSTEMS**

- Systems for emptying bags and boxes
- Free standing or integrated applications
- Platforms for depalletizing or bag access
- Knife boxes for cutting of seed bags
- Dust collection hoods and grates
- Multiple discharge designs

Rebag systems include equipment for unloading seed from conventional bags, large bulk bags, or pallet boxes. Unloading hoppers, access platforms and knife boxes are available to meet specific local requirements.

**DUST FILTER UNITS**

- Passive cloth filters and cyclone dust collectors
- Cyclones available in multiple diameters
- Modular filter units adapt to a range of airflow volumes
- Filter bags in 9”, 12”, and 24” diameters
- Zipper bottom or open end bags for outlet hoppers
- Optional outlet transitions, airlocks and bin activators

Dust collectors are used to remove nuisance dust from exhaust air. Cyclone type collectors are simple, low cost units which separate heavy dust particles by centrifugal force. Passive bag filters use overwise cloth bags to filter dusty air, and operate at higher efficiencies than centrifugal separators. Both types are sometimes used in series when handling extremely dusty air or large particulate material such as cobs.

**AEC EUROPE**

Gabriel Gheorghe
+40 730 170 182
ggheorghe@aecenterprises.com

**AEC SALES & SUPPORT**

(641) 396-2716 Office
(641) 396-2635 Fax
sales@aec-corp.com
www.aec-corp.com

**AEC SALES & SUPPORT**

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Production Dryer
Production Sheller/Cleaner
Electrical/Automation

AEC Sales & Support
Phone 641-396-2716 ▪ Fax 641-396-2635
sales@aec-corp.com ▪ www.aecenterprises.com
114 East Main Street ▪ Saint Charles, IA 50240

AEC Europe Sales & Support
Gabriel Gheorghe
+40 730 170 192 ▪ ggheorghe@aecenterprises.com