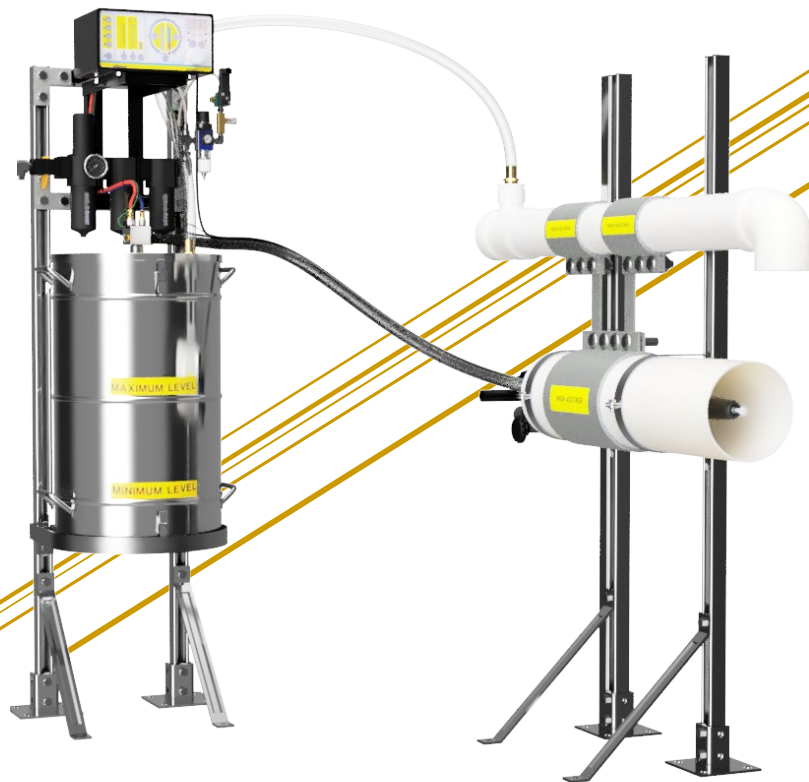
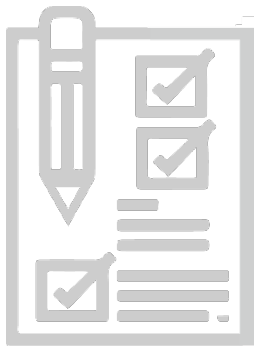




AMCOL CORPORATION  
3500E ELECTROSTATIC POWDER  
APPLICATION SYSTEM  
TECHNICAL DESCRIPTION



# Contents

1. Introduction .....	3
2. System Overview .....	4
3. Description of Components .....	5
4. Recommended Release Agent .....	7
5. 3500-ETC.....	7
6. How to Order.....	8



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# 1. Introduction

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AMCOL has been providing innovative solutions for aluminum extrusion process lubrication since the late 1980s. The AMCOL 3500E Electrostatic Powder Application System used in combination with 410 BPN EJECTEZE is our recognized and proven solution for automatic aluminum billet lubrication.

3500E is designed to automatically lubricate aluminum billets with press guard and other safety equipment actively in place. Burns, slip and fall, repetitive strains, and other more serious injuries can occur with manual lubrication. 3500E increases safety and productivity, by eliminating manual lubrication. The is ideally installed after the billet heating oven, just prior to billet loading into the press. This design is universal as it can fit most billet loading conveyors (horizontal, vertical, and overhead). This system is timed and actuated through the press PLC and runs in harmony with the production process.

410 BNP EJECTEZE is a Boron Nitride powder that is formulated for aluminum extrusion. Electrostatic properties provide an effective transfer to the billet, excellent adhesion to aluminum, and it will not affect the finished material. 410 BNP also provides superior release which migrates to hard-to-reach areas on tooling. It also only requires minute quantity per application, so a little powder will go a long way.

The combination of these products will decrease aluminum build-up on the dummy block, expansion ring, and mandrel. With reduced operator intervention an increase in productivity is guaranteed. Used properly, it will eliminate manual lubrication that is often associated with streaks and blisters on the profiles. Automatic lubrication is also designed to eliminate stuck butts to keep your press up and running.



## 2. System Overview

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The AMCOL Model 3500E Electrostatic Powder Application System is designed to automatically dispense AMCOL 410 BNP EJECTEZE onto aluminum billets used in the hot aluminum extrusion process, eliminating the need for manual lubrication.

In this system, a Wagner PEA-C4 powder gun is fed from a centrally located stainless steel hopper, which includes a fluidizing bed to intermittently mix the powder (as actuated by a 110V or 24V solenoid). The powder is siphoned from the reservoir with the Wagner PI-F1 powder feed injector. The electrostatic powder gun is mounted on an adjustable strut frame that is attached to the floor near the point of application. The powder gun mixes the powder with air and then dispenses it to the point of application with the aid of an electrostatic field. A PVC tube is used to protect the gun and ensure the best possible transfer of powder to the billet end.

The controller, which comes complete with hose and electrical connections made to the powder gun and connections for proper system grounding, provides finger-tip control of charge voltage, powder feed and the dosage of atomizing air to the gun. The controller provides large easy-to-read displays that indicate actual kilowatt values for corona charging, air settings, and transfer amperage.



### 3. Description of Components

#### *Wagner Controller - EPG SPRINT*

Controller conveys high transfer efficiency (100 kV cascade) to eliminate overspray. Comes pre-programmed with ideal settings for aluminum billet lubrication with 410 BNP EJECTEZE.



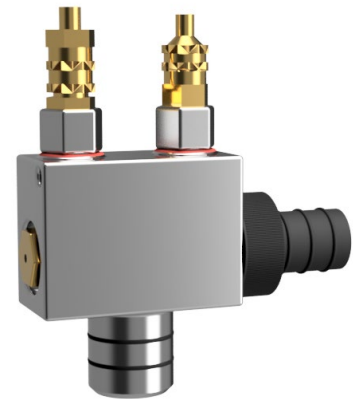
#### *Wagner Electrostatic Powder Gun – PEA-C4*



Produces an electrostatic field which allows the release agent to stick to the grounded billet. Comes standard with a 20mm deflector cone (12" billet or under) which provides a light, round spray pattern with uniform film thickness. 28mm and 38mm deflector cones are also available for larger billets

#### *Powder Feed Injector – PI-F1*

Supplies powder from the stainless-steel hopper to the powder gun using the Venturi principle.

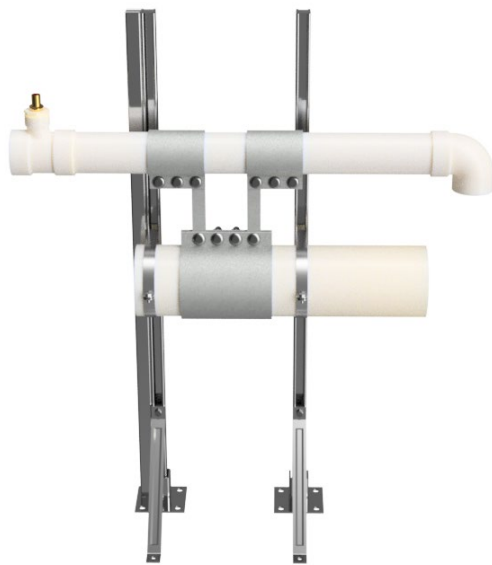


## Powder Hopper

A high capacity 60L hopper is used to store powder for application. This stainless-steel hopper reduces exposure to moisture and allows fluidizing air to mix and dry the powder. One 5-gallon pail of 410 BNP EJECTEZE fits perfectly inside the hopper.



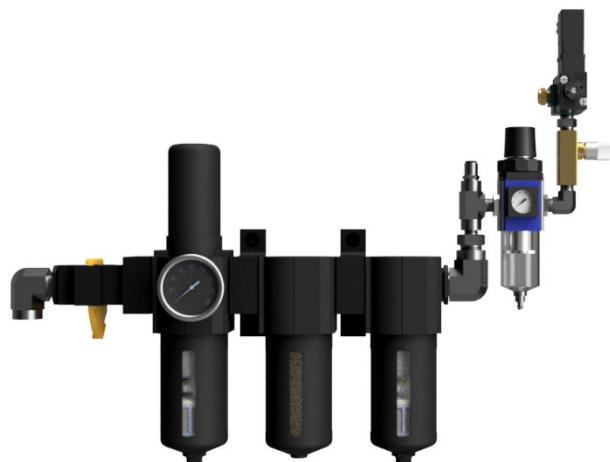
## Dust Collection



The powder collection tube is designed to be placed just past the billet end so as not to interfere with the powder transfer to the billet and yet collect any powder which passes the target or floats up in the air. This design is very universal as it can be rotated to fit most any billet loading conveyors (horizontal, vertical, and overhead). It can also be easily modified or resized to fit your specific installation. This assembly is to be connected to a Donaldson Torit 550 Vacuum System designed to pull 550 CFM (clean air) and includes a two-stage high efficiency filter with an automatic shaker to clean the filter during non-use. This type of unit is available in 3 phase, single phase 220V AC, and single phase 110V AC through most catalog industrial supply companies.

## Air Treatment

Used to provide dry and pressurized air to the system. Plant air travels through the regulated filter, followed by desiccant, and then another filter before being split. Part of the air will go to the EPG Sprint controller and the rest will be filtered one more time before reaching the solenoid to fluidize the powder in the hopper.





## 4. Recommended Release Agent

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### 410 BNP EJECTEZE

410 BNP EJECTEZE is a Boron Nitride based powder that has been developed specifically for use in the aluminum extrusion industry, providing excellent lubrication and release properties. 410 BNP EJECTEZE comes conveniently packaged in 5-gallon pails and is use as received. It is applied as a thin film coating to the back or front end of each hot or cold billet. This product can also be used directly on the dummy block every three to five billets. 410 BNP EJECTEZE is 100% inorganic and does not contain any combustible or burnable constituents.



## 5. 3500-ETC

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For customers who want to utilize a 3500E system, but do not have the time or capability to wire or reprogram the press PLC, the 3500-ETC gives you the ability to control a 3500E system with only one machine control signal. When the 3500-ETC receives the signal, it will tell the 3500E to cycle one time without the need for any other connections or programs. The 3500-ETC also allows for easy modification of the 3500E spray cycle at the push of a button, without any reprogramming. The 3500-ETC comes with all the connections prewired, so installing it on the 3500E is simple. See the AMCOL 3500 Electronic Timing Controller Technical Description for more information.



## 6. How to Order

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Purchasing a 3500E System requires the following selections to be made to best fit the system to your extrusion operation. Press control voltage should match the Air Treatment selection. The controller is powered with a 110V AC plug.

Air Treatment Voltage

- 110V AC
- 24V DC

To place an order or if you have any further questions, please contact your AMCOL sales representative or contact AMCOL directly by:

- Email – [orders@amcolcorp.com](mailto:orders@amcolcorp.com) or [info@amcolcorp.com](mailto:info@amcolcorp.com)
- Phone – (248) 414-5700

For additional information on installation, operation, and maintenance of a 3500E system, see the AMCOL 3500E Electrostatic Powder Application System Operator's Manual.



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