

# LIME INJECTION

## SYSTEMS FOR EAF STEEL PLANTS

### IMPROVED EFFICIENCY

In electric arc furnace (EAF) steel plants, operating more efficiently increases the competitive advantage. One way to improve operating efficiency is through the installation of a lime injection system from Carmeuse Systems. Through partnerships with Coperion and Tallman Technologies, we combine lime material and handling expertise (Carmeuse & Carmeuse Systems) with proven dense-phase conveying experience (Coperion), and supersonic lime injectors (Tallman Technologies) to ensure you get one of the most reliable systems on the market. This means you can feel confident with a safe, accurate and consistent lime supply to your furnace.

### KEY CONSIDERATIONS

Traditionally, lime has been added to the EAF by “dropping it” into the top (5th hole) via super sacks, conveyors or bucket cranes. However, these methods can create many issues such as waste through the baghouse, dusting around the shop floor, and less control of the application. Because of this, installing a lime injection system has many benefits to the steelmaker including:

- Improved safety with less dust around the work area
- 7-15% reduction in lime consumption due to not losing lime through the baghouse
- Improved slag chemistry from better process control
- Energy savings through reduced melting power
- Cost savings on consumables (electrodes and refractory)
- Less CO<sub>2</sub> emittance



## MEETING YOUR NEEDS

Carmeuse Systems has the expertise to work in new and existing operations. Our engineers collaborate with you to develop and deliver solutions that suit your needs. Our team can follow our product to the field for project oversight, startup services, training and aftermarket support.

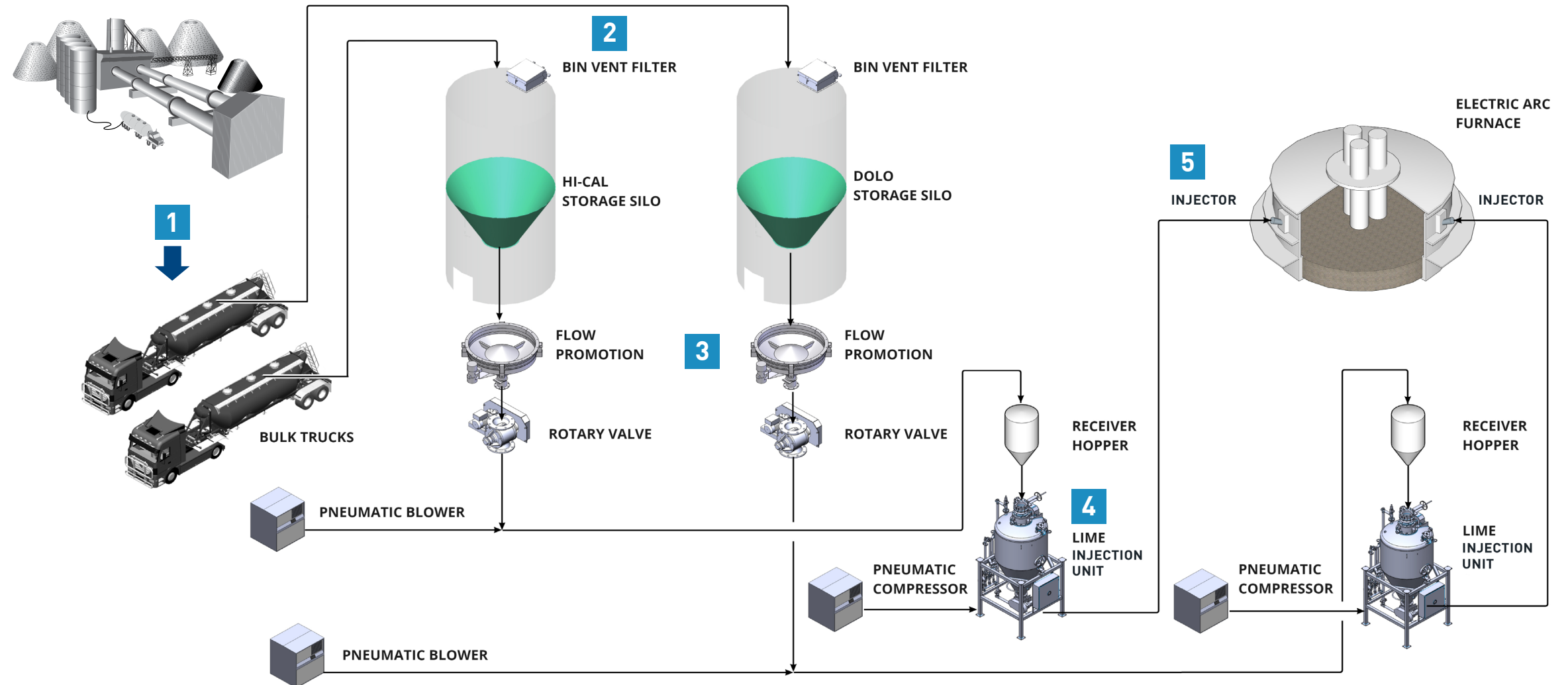
## BENEFITS

To get lime efficiently to the furnace, it starts with an understanding of the source. Raw material expertise from Carmeuse ensures that your system is designed to accommodate the high calcium or dolomitic lime available to your plant.

Lime sizing can vary, affecting flow and the chance for plugging, which could cause inconsistency and/or gaps in production. To overcome this issue, we partnered with Coperion and their proven dense-phase lime injection units. Coperion injection systems are widely used in steel for injection of coal and activated carbon. This design has been proven to provide accurate, reliable and consistent supply to the furnace even with variations in material size. Tallman Technologies' patented supersonic lime injectors create a coherent injection stream to then deliver lime to the bath.

We combine this knowledge together with our expertise in lime handling equipment to offer a complete lime injection package that you can count on.

# THE CARMEUSE SYSTEMS DIFFERENCE



### 1 Analysis of Lime

This essential process helps us understand chemical and physical properties that will ensure proper design of a system.

**BENEFIT**—a proper system design in relation to the available raw material supply, improving cost effectiveness and minimizing downstream plugging issues.

### 2 Bin Vent Filter

This unit can be retrofitted on an existing silo with a compact, low-profile, top-access body design.

**BENEFIT**—lightweight, tool-less, hinged top-access door provides clean air-side access to filters and requires no tools during cartridge replacement reducing maintenance costs.

### 3 Flow Promotion

Utilization of bin activators, aeration bottoms, air pads, and/or impactors to prevent product buildup, bridging, or ratholing.

**BENEFIT**—keeps lime moving freely, effectively, and consistently, eliminating disruptions.

### 4 Lime Injection Unit

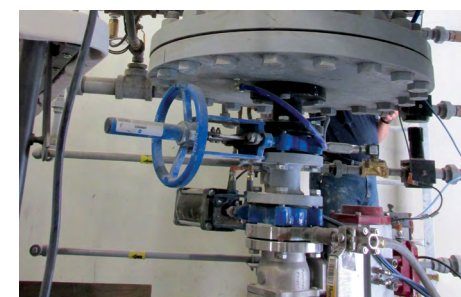
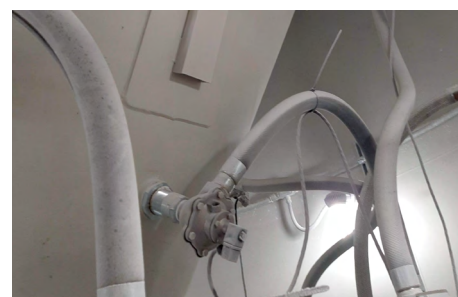
Designed to effectively convey lime to your furnace and can be controlled by volume or weight.

**BENEFIT**—accurate, repeatable and reliable, not affected by material size changes, providing consistent, uninterrupted supply to the furnace.

### 5 Injector

The lime injector uses supersonic jets to deliver high calcium and dolomitic lime into the bath at almost twice the speed of sound.

**BENEFIT**—the assembly can be easily installed in any existing furnace, while the coherent injection stream improves lime injection efficiency and foamy slag formation.





# AFTERMARKET SOLUTIONS

Proper design of a lime handling system will add to the ease of operating the system; however, maintenance must be carried out on your lime system to ensure it continues to run efficiently. Carmeuse Systems is dedicated to ensuring your lime storage, handling, slaking and/or lime injection system continues to work correctly for years to come. We offer a variety of solutions to improve the efficiency and lifecycle of your system.

- System Retrofits and Upgrade Solutions
- Onsite Audits
- Automation & Controls
- Replacement Parts and Components



Coperion ([www.coperion.com](http://www.coperion.com)) is a global industry and technology leader in compounding and extrusion systems, sorting, size reduction and washing systems, feeding, weighing, material handling and pneumatic conveying systems, as well as milling, mixing, thermal processing, dust collection and other services. Coperion develops, produces, and services plants, machinery, and components for the plastics and plastics recycling, chemical, battery, minerals, food and pharmaceutical industries. Coperion employs more than 5,000 people in its three divisions, Polymer, Food, Health & Nutrition, and Aftermarket Sales & Service - at over 50 sales and service locations worldwide. Coperion is an Operating Company of Hillenbrand (NYSE: HI), a global industrial company that provides highly-engineered, mission-critical processing equipment and solutions to customers serving a wide variety of industries around the world. [www.hillenbrand.com](http://www.hillenbrand.com)



Tallman Technologies brings design and engineering expertise in supersonic lime injection technologies. Their patented lime injectors are some of the most efficient on the market and not only reduces the loss of lime to off-gassing but also improves customer sustainability goals by significantly reducing scope 2 and 3 CO<sub>2</sub> emissions. Learn more at [tallmantechologies.ca](http://tallmantechologies.ca)

## YOUR LIME HANDLING EXPERTS™

Carmeuse Systems is your trusted partner for designing, integrating, and upgrading lime handling systems. As part of the Carmeuse Group, our teams have unrivaled expertise in understanding the role of lime handling equipment within your operation. From selecting the appropriate raw material, to system engineering, enhancements, and maintenance, our teams provide End-2-End support and guidance. We make complex projects seem simple and help our customers every step of the way. Let's start a conversation, contact us at:

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