

PROBLEMS WITH DEGRADATION OR SEGREGATION? NOT ANY MORE!

THE SOLUTION IS

THE CLEVELAND CASCADE® CHUTE

DEGRADATION

Degradation is a problem with many bulk products. Degradation is normally associated with high velocity impact resulting from bulk material falling from a considerable height. The drop height between the Cleveland Cascade® Chute cones is small. At high tonnage rates, the cones partially fill, virtually eliminating the drop height between cones and simulating mass flow. As a result, degradation is minimized.

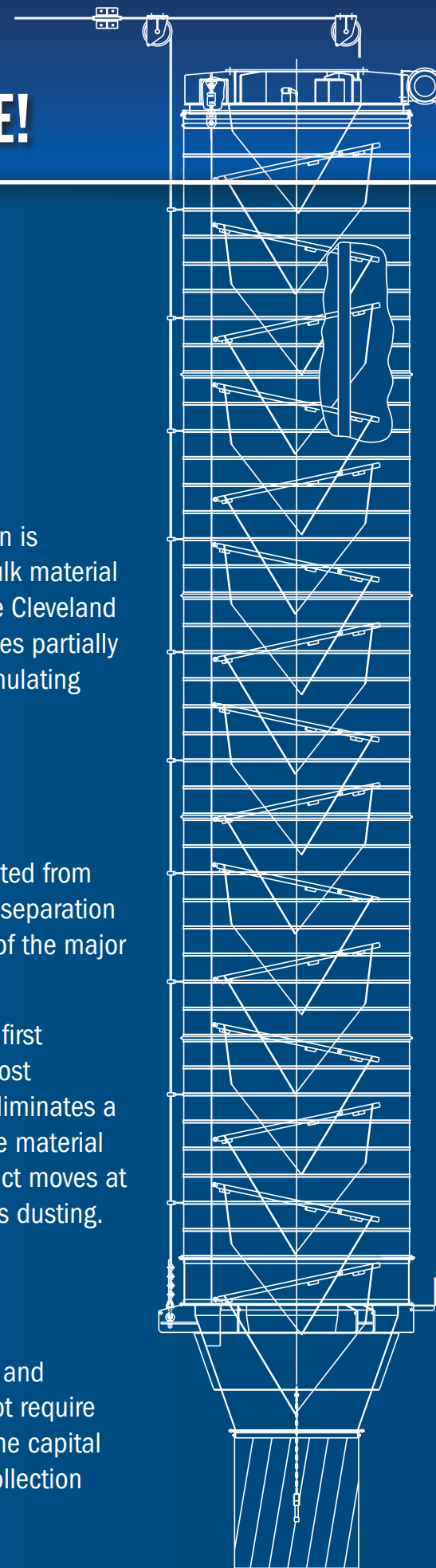
SEGREGATION

Segregation occurs when the finer product particles are separated from larger product particles. When a material is vertically dropped separation is maximized. Separation of the different particle sizes is one of the major contributors to dusting issues when loading products.

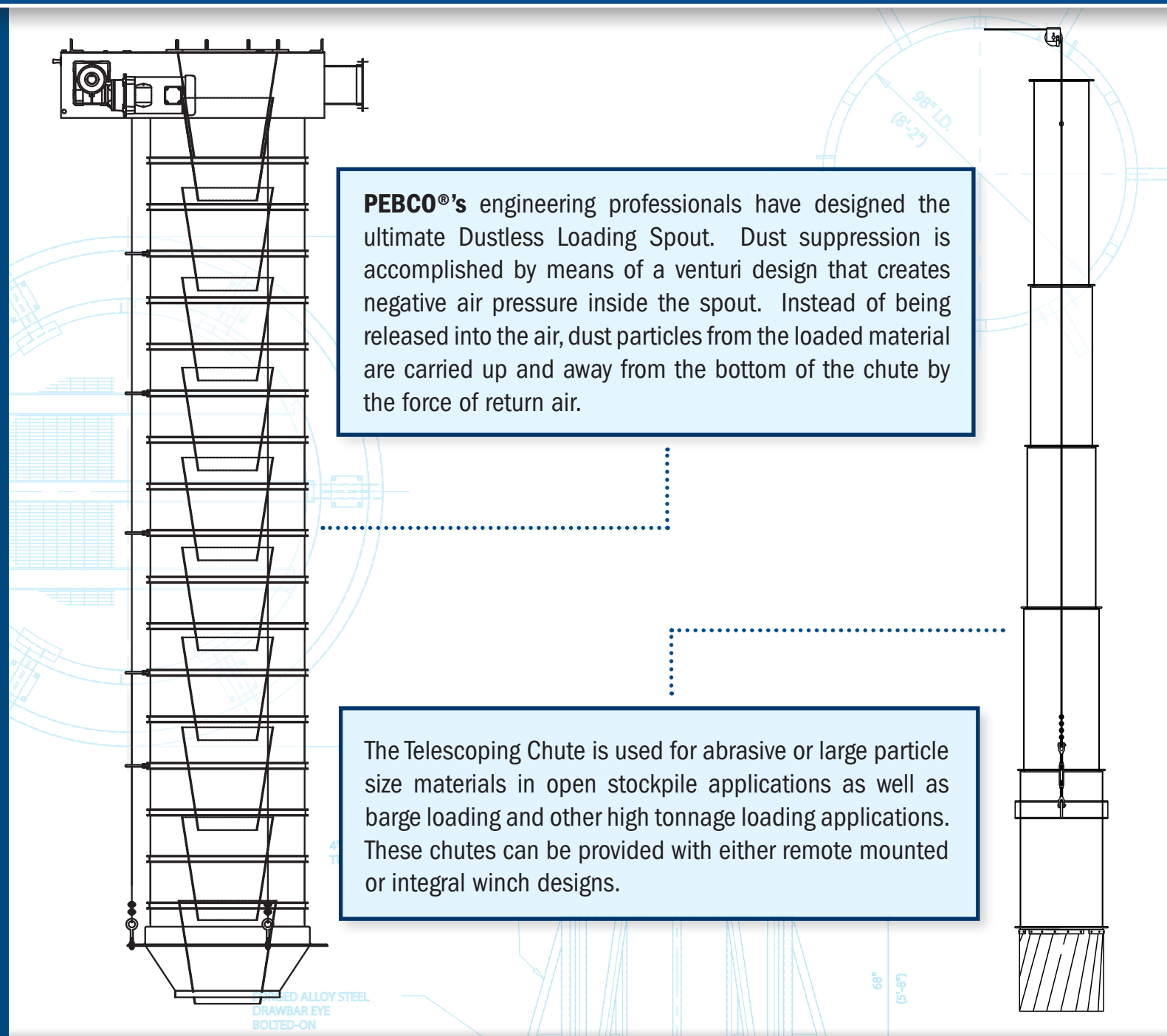
The Cleveland Cascade® Chute reduces product separation by first reducing the drop height between the cones. Secondly, and most importantly, the cones are set in the chute at an angle which eliminates a vertical drop of the material. The cone angle is adjusted for the material being handled to control the product's speed. When the product moves at a slower speed there is less product separation resulting in less dusting.

DUST CONTROL

As a result of the cascading flow of material through the chute and slower product speeds, the Cleveland Cascade® Chute does not require dust collection at the discharge of the chute. This eliminates the capital cost and maintenance costs associated with expensive dust collection equipment.



In addition to the Cleveland Cascade® Chute, **PEBCO®** offers equipment specifically designed and engineered for convenient loading of dry bulk materials for storage and shipping.



PEBCO®'s engineering professionals have designed the ultimate Dustless Loading Spout. Dust suppression is accomplished by means of a venturi design that creates negative air pressure inside the spout. Instead of being released into the air, dust particles from the loaded material are carried up and away from the bottom of the chute by the force of return air.

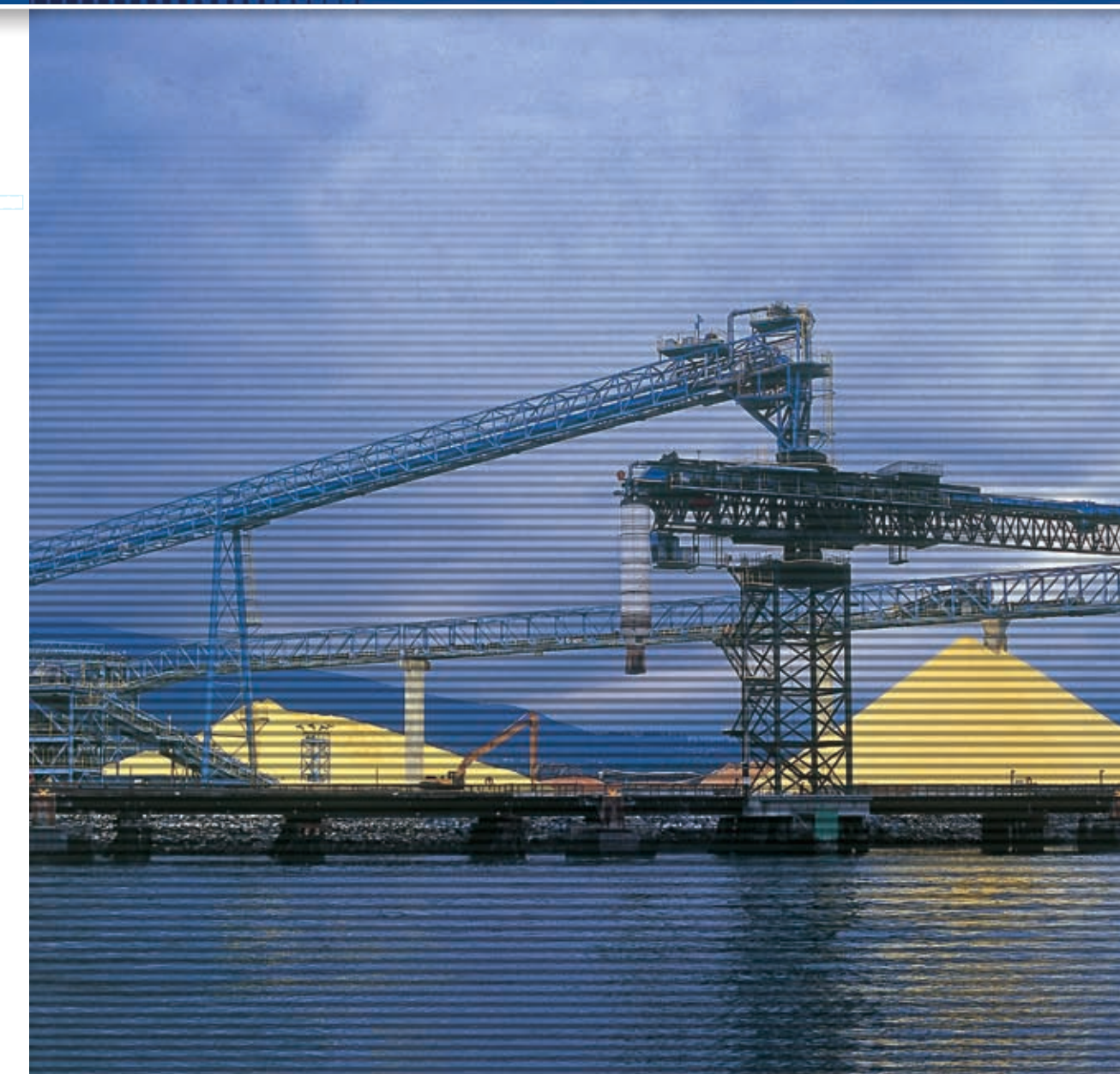
The Telescoping Chute is used for abrasive or large particle size materials in open stockpile applications as well as barge loading and other high tonnage loading applications. These chutes can be provided with either remote mounted or integral winch designs.

The efforts that **PEBCO®** began over thirty years ago continue today. **PEBCO®'s** commitment to offer the bulk handling industry a customizable and reasonably priced solution to their application needs will continue.

U.K. PATENT No: 2258460
U.K. PATENT APPLICATION No: 9424929.9
U.S. PATENT No: 5289909
EUROPEAN PATENT APPLICATION No: 92306321.8

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CLEVELAND CASCADE® CHUTE



PEBCO®
The Material Handling Problem Solvers.

THE CLEVELAND CASCADE® CHUTE

Strong, Simple & Highly Flexible

PEBCO® has been servicing the powder and bulk materials market for over thirty years. Through years of experience and service, PEBCO® has grown to global prominence with headquarters in the United States and representation throughout the world.

Seeking solutions to unique material handling problems, PEBCO®'s experience, versatility and innovation have led to the development of several patented products, features and options for equipment used in the dry bulk solids industry.

PEBCO® is acknowledged worldwide as a leader in the engineering and supply of ruggedly built equipment to control and load dry bulk materials. PEBCO® designs and manufactures customized gates, valves, diverters, mass flow feeders, air slides, dustless loading spouts, telescopic chutes, Cleveland Cascade® Chutes and systems for barge, ship, truck, and railcar loading.

The Cleveland Cascade® Chute is a unique patented design, employing a cascade principle which directs the material flow back and forth rather than allowing the material to fall directly through the chute. This flow pattern creates a mass flow profile and decreases product flow speeds.

The reduction in the product discharge velocity and the amount of induced air minimizes dusting at the discharge. This provides excellent dust control without the need for expensive dust collection equipment.

The Cleveland Cascade® Chute consists of a series of oppositely inclined cones, supported by straps, and surrounded by an independent wind shroud. A carrier at the lower end of the chute is raised or lowered by cables from a winch assembly. When lifted, the carrier supports the compact stack of cones, while the cones themselves automatically stack into one another without any form of guide. The winch cables perform a secondary function in the provision of guides for the wind shroud.

FEATURES AND BENEFITS:

- Easy Maintenance
- Independent Shroud
- Multi-product Flexibility
- Dry, damp and even wet materials can be loaded
- Elimination of discharge dust collection equipment

OPTIONAL EQUIPMENT:

- Probes
- Load Cell Weighing System for overload protection
- Radio Remote Control
- Skirt Arrangement
- Trimmer (Spoon)
- Cone Wear Liners
- Transporter
- Integral Winch Design

LOADING RATES:

The flow of bulk products through a Cleveland Cascade® Chute is complex, depending on density, moisture content, particle size, cohesion friction, cone size, cone angle and cone shape.

A number of cone sizes are available to accommodate flow rates in the range of 200 - 4,000 tons per hour based on a product density of 60 pcf.



PEBCO® Quality Assurance

PEBCO® sets high standards for quality which are backed by our reputation built upon years of experience and service. PEBCO® equipment is manufactured under the guidelines of our quality assurance program and is inspected by an on-staff certified welding inspector. The welding of all materials: abrasion resistant steel, aluminum, mild steel, non-ferrous metals, stainless steel and all alloys are performed to AWS standards.

