



# Industrial Combustible Dust Solutions



ENGINEERING YOUR SUCCESS.

# All Manufacturing Facilities Create Dust of One Type or Another

If your manufacturing facility is creating combustible dusts, NFPA (National Fire Protection Association) 652 defines the standard for a Dust Hazard Analysis (DHA) for your dust or dusts, and the requirement and enforcement of the DHA is through a regulatory agency such as OSHA or the Authority Having Jurisdiction (AHJ). Your DHA is a methodical review of your dusts with the intent to both identify and evaluate the risk of fire and explosion hazards within a facility or process handling combustible dust. If your dust or dusts are combustible, you will have to add explosion protection components to your dust collection system. The data in your DHA will determine the combustibility and explosivity characteristics of your dusts such as Kst, Pmax, MIE, and MEC values.

The NFPA 652 requirement for the completion of the Dust Hazard Analysis means that you should have your DHAs on record now. If tests reveal that your Kst value is greater than zero, then review with experts of dust control solutions for how to safely and effectively handle the collected dust.

Your Parker DustHog Distributors and Applications Engineering are available for help in proper dust collection system design.



When comparing manufacturing operations, 53% of all primary dust explosions happen within dust collectors.<sup>1</sup> These explosions can result in secondary explosions in or around the facility. Explosions can be devastating as are all safety incidents when they can be avoided.

Know your options.

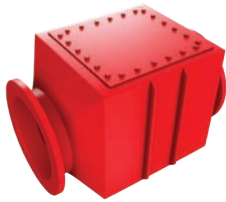
## Explosion Prevention Terminology - Product Key\*



1

### ROTARY AIR LOCK/ EXPLOSION PROOF DRUM KIT

Provides a means of explosion isolation.



2

### NO RETURN VALVE

Isolates a deflagration in the dust collector inlet ducting.



3

### EXPLOSION ISOLATION VALVE

Isolates a deflagration in the dust collector exhaust ducting.



4

### EXPLOSION CHEMICAL SUPPRESSION SYSTEM

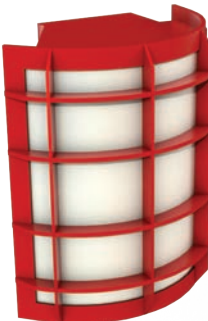
Suppression systems are designed to detect and chemically suppress an explosion in its earliest stages – before an explosion can cause a disaster or become catastrophic. The probes are designed to detect an explosion. The bottles are designed to quickly deliver chemical suppressants before an explosion can cause a disaster or become catastrophic.



5

### EXPLOSION VENT MEMBRANE PANEL

Protects equipment or buildings against excessive internal, explosion-incurred.



6

### FLAMELESS VENT

Flameless venting devices combine the techniques of explosion venting and flame arresting. Flameless venting devices typically comprise a vent panel, flanged housing, and a flame arrester element.

\* Illustrations are only depictions of available product on the market and are not representative of any manufacturers design.

<sup>1</sup> Powder & Bulk Solids April 28th, 2021 Article: "Combustible Dust: DHA and Other Methods for Prevention"

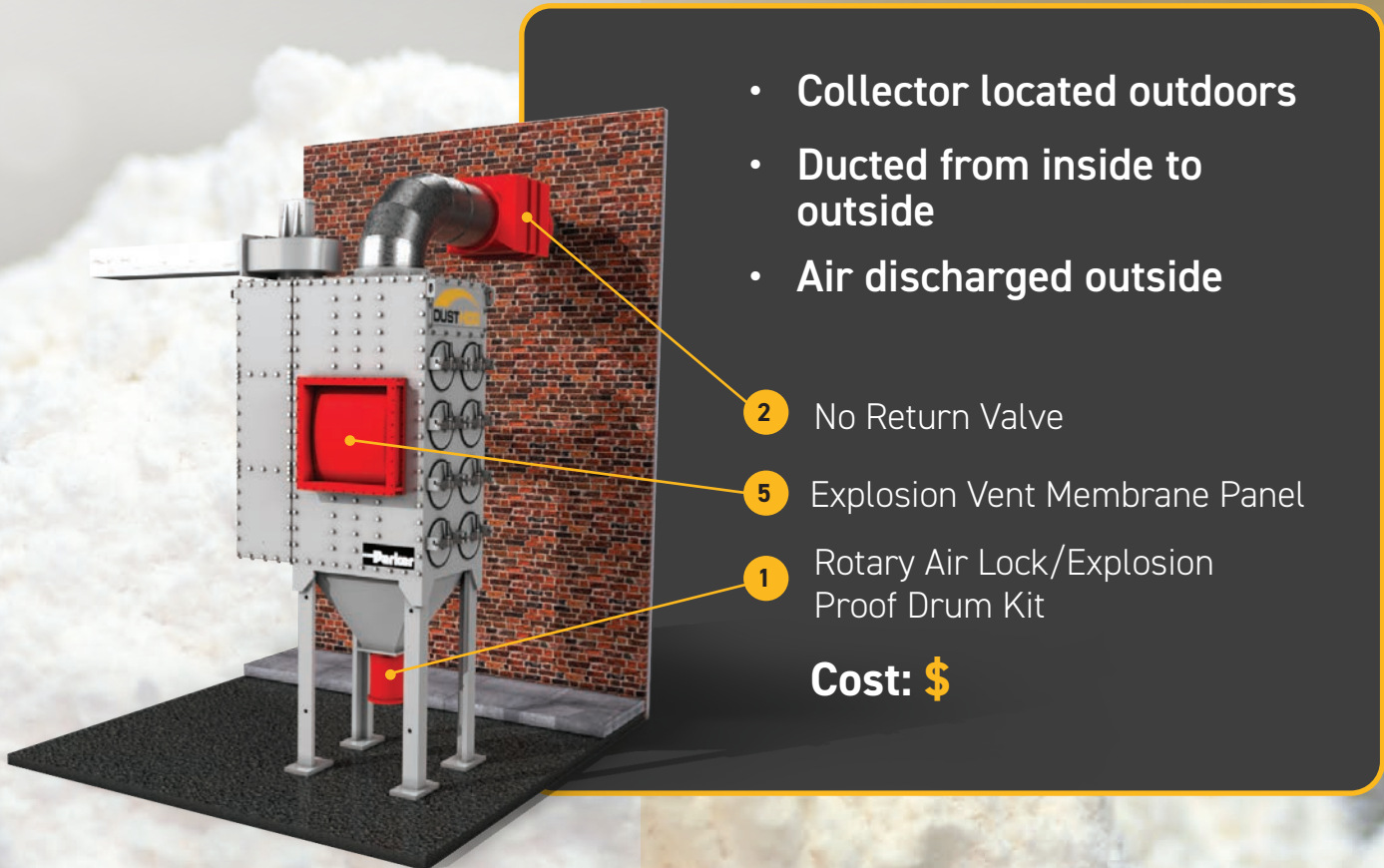
# How Combustible is Your Dust?

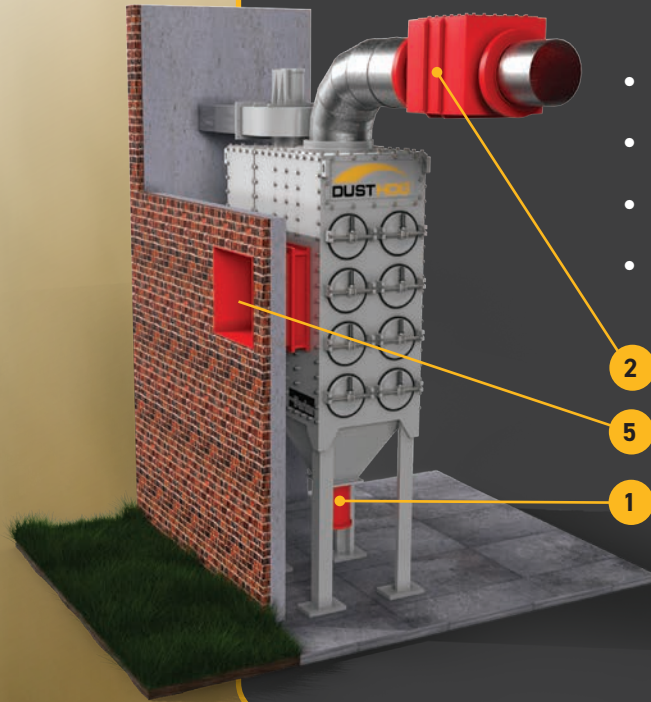
The explosibility of your dust will dictate the type of explosion protection components will be needed. The location of your collector, inside or outside, or if you are recirculating the air back into the building, will also dictate the type of components that would be required. This guide will allow you to select the appropriate components depending on where your collector is located.

Once you have assessed your dust or dusts for Kst, Pmax, MIE, and MEC values, this will determine what NFPA components will be required. Once that is established then the design of the dust collection system can be initiated, followed by the appropriate operation and maintenance of such system. Please be sure to enlist the assistance of a qualified air pollution control company or contact Parker directly at [www.parker.com/airquality](http://www.parker.com/airquality).

## The following are specific examples of dust collector systems that require explosion related devices.

All dust in examples are considered to be greater than 0 Kst.

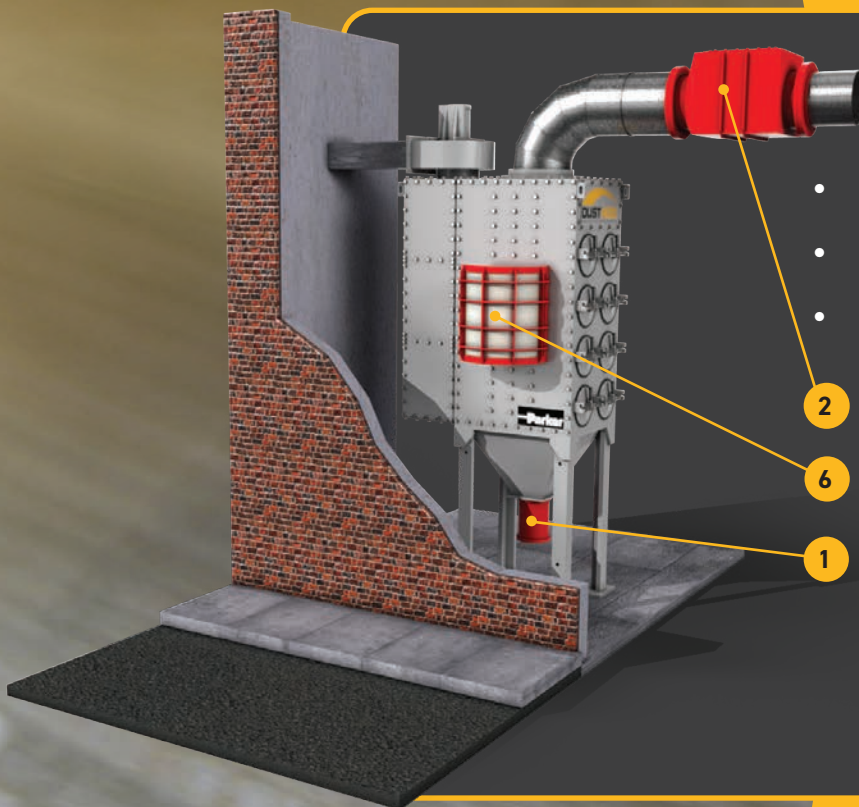




- Collector located indoors
- Ducted from inside to inside
- Air discharged outside
- Explosion vent ducted outside

- 2 No Return Valve
- 5 Explosion Vent Membrane Panel
- 1 Rotary Air Lock/Explosion Proof Drum Kit

**Cost: \$**



- Collector located indoors
- Ducted from inside to inside
- Air discharged outside

- 2 No Return Valve
- 6 Flameless Vent Panel
- 1 Rotary Air Lock/Explosion Proof Drum Kit

**Cost: \$\$**

- Collector located outdoors
- Ducted from inside to outside
- Air returned inside

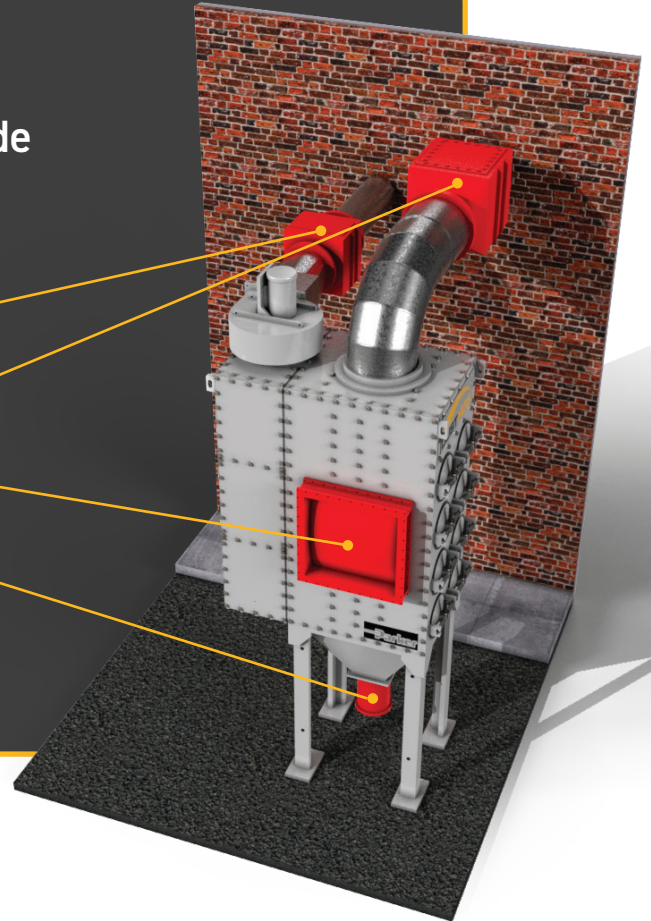
Explosion Isolation Valve **3**

No Return Valve **2**

Explosion Vent Membrane Panel **5**

Rotary Air Lock/Explosion Isolation Drum Kit **1**

**Cost: \$\$**



- Collector located indoors
- Ducted from inside to inside
- Air discharged inside

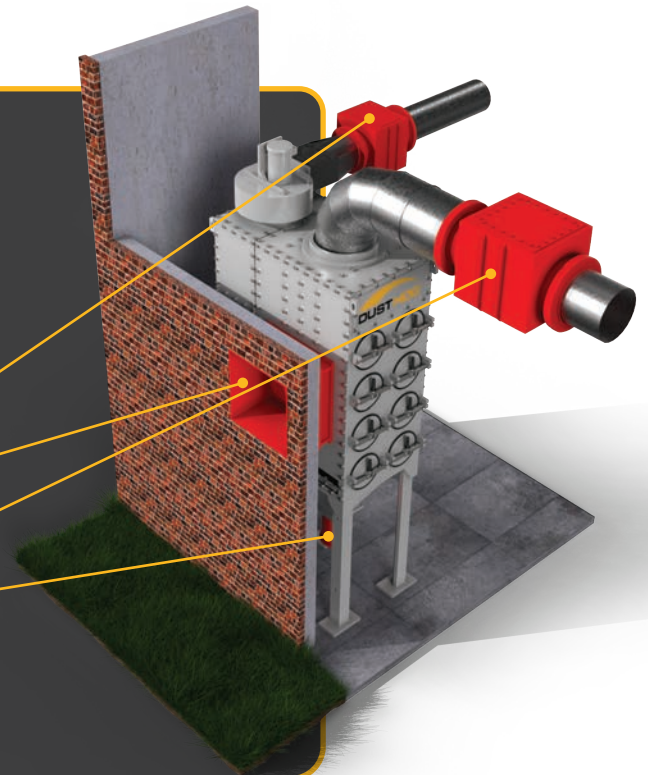
Explosion Isolation Valve **3**

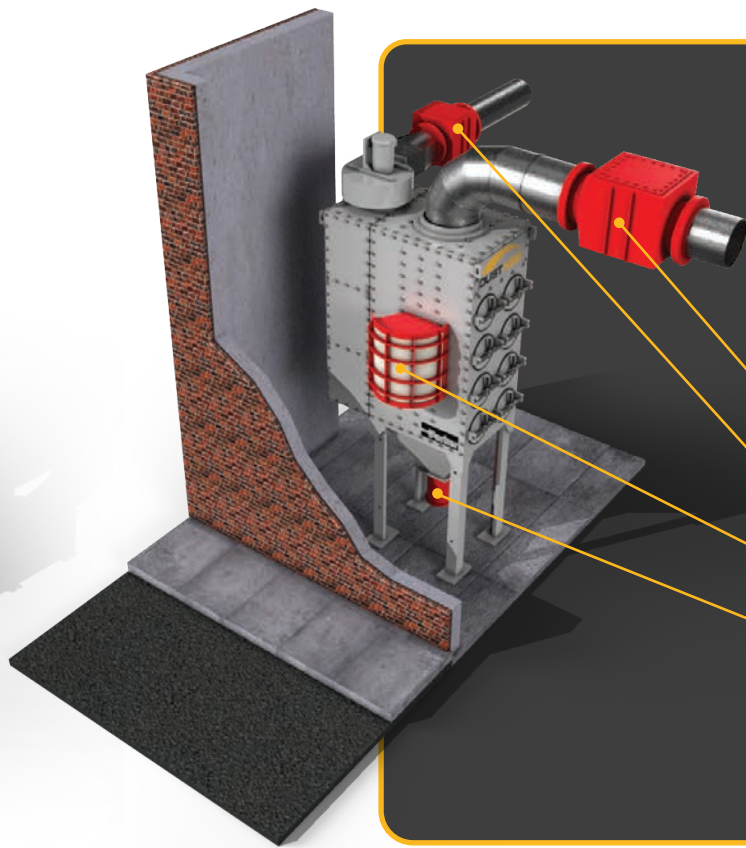
Explosion Vent Membrane Panel **5**

No Return Valve **2**

Rotary Air Lock/Explosion Proof Drum Kit **1**

**Cost: \$\$**





- Collector located indoors
- Ducted from inside to inside
- Air discharged inside

- 2 No Return Valve
- 3 Explosion Isolation Valve
- 6 Flameless Vent Panel
- 1 Rotary Air Lock/Explosion Proof Drum Kit

**Cost: \$\$\$**

- Collector located indoors
- Not adjacent to outside walls
- Ducted from inside to inside
- Air discharged inside

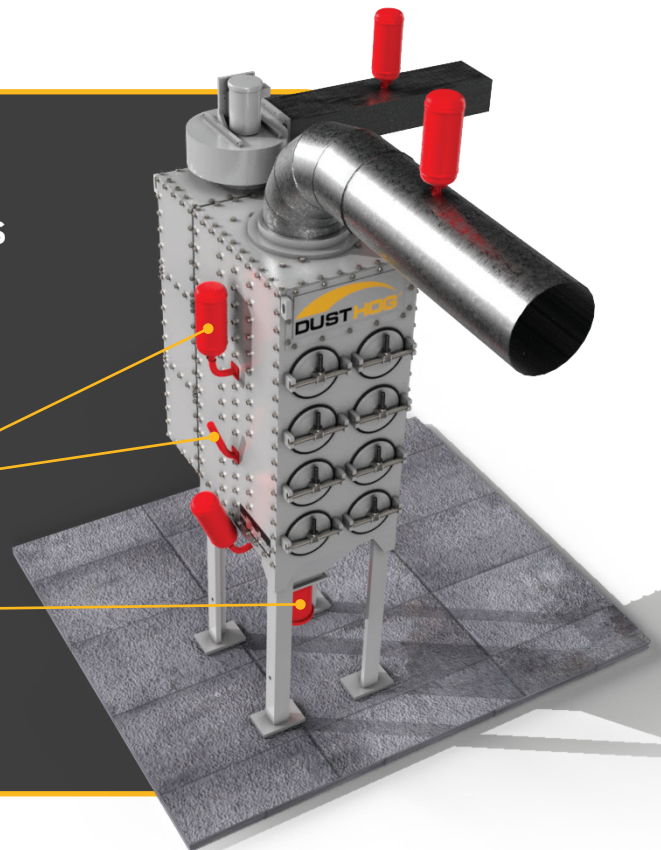
Explosion Chemical  
Supression System

4

Rotary Air Lock/Explosion  
Proof Drum Kit

1

**Cost: \$\$\$**





Parker Hannifin is committed to providing clean air solutions that protect your employees, improve plant performance and enable you to realize your operating goals.

Our commitment is backed by continuous investment in research, leading-edge technology and product development, our people whom are the most knowledgeable in the industry, and a product portfolio that is proven to deliver results. We have been solving problems for you, our customers across the globe for over 50 years.

## Industrial Applications

- Abrasive Blasting
- Batch Mixing
- Blending
- Buffing
- Bulk Powder Handling
- Carbon Black
- Cast Iron
- Drilling
- Dry Chemicals
- Filling
- Finishing
- Grinding
- Material Handling
- Metal Working
- Packaging
- Paint Pigment
- Paper Dust
- Polishing
- Powder Coating
- Sanding
- Sawing
- Screening
- Smelting
- Spices
- Weighing
- Welding
- Wood Dust

**Important** - Understand and follow NFPA guidance in selecting equipment for your intended application, including required safety devices and testing your dust to determine combustion hazards. At your election, we can coordinate sample collection and testing.

