Donaldson Torit®

SPARK MITIGATION

In modern industrial plants where welding, grinding, machining or other processes produce potentially combustible dust, mist, or fume, maintaining a clean and safe work environment becomes a top priority. Assessing and addressing the fire risks in your facility should be part of your hazard analysis and prevention plan.

The classic fire triangle highlights the three components necessary for a fire: an ignition source, a fuel, and an oxidizer. In industrial processes an ignition source may be any sparks, heat, or embers produced by the process. The fuel is the potentially combustible dust, fume, or mist in the process. Air used to transport fugitive dust, fume, or mist to a collector then provides the last component, an oxidizer.

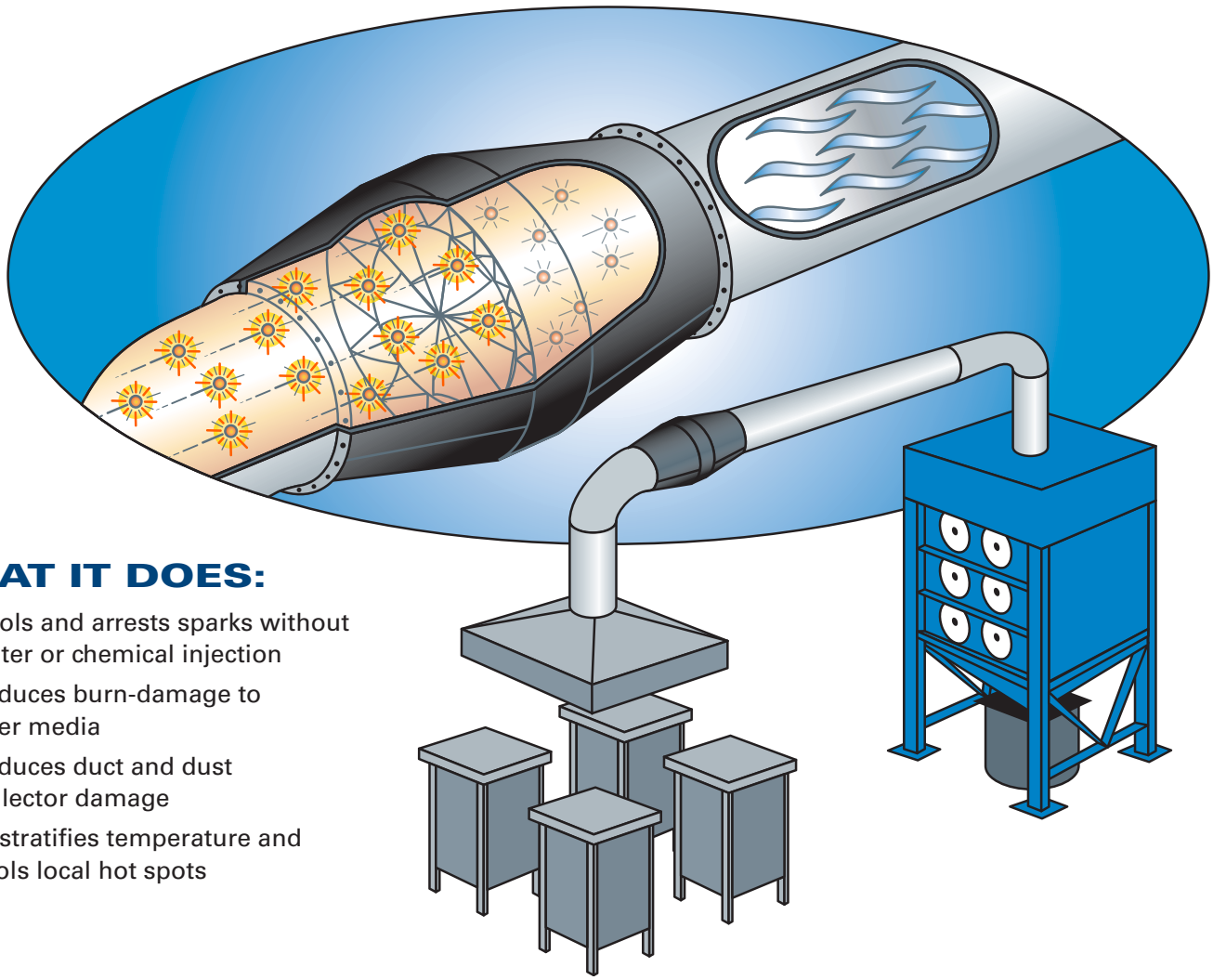
PREVENTION

One method to help reduce fire risk is an ignition source mitigation strategy. A variety of options exist such as drop out boxes, inline spark traps, specialized inline spark abatement devices, spark detection and quenching systems, dust collector location, and material specific systems to prevent mixing of incompatible materials. None of these strategies can remove all hazards, instead they reduce the chance of ignition sources reaching the accumulated fuel in a collector. Additional fire protection options should still be reviewed for each application.

Inline spark abatement devices would be located within the air intake duct. One type of device creates turbulence in the air steam that cools and arrests most sparks without the use of water or chemicals. The Spark Cooler® by Blender Products, Inc. uses air to reduce the number of sparks reaching any combustible fuel collected on the surface of the filter media. This optional equipment may be worth considering as part of your fire risk mitigation strategy.

SPARK MITIGATION:

The Spark Cooler® is ideally suited to mitigate sparks generated in metal and other low-load material processing applications, under non-explosive conditions. The Spark Cooler® works to create turbulence in the air flow stream, thereby cooling the spark by increasing the residence time of the spark in the duct, as well as disturbing the thermal bubble surrounding the spark and allowing the lower temperature in the gas stream to influence the particle temperature. It is not an extinguishing system and should never be applied as a standalone device in processes requiring absolute spark suppression.



WHAT IT DOES:

- Cools and arrests sparks without water or chemical injection
- Reduces burn-damage to filter media
- Reduces duct and dust collector damage
- Destratifies temperature and cools local hot spots