



Case Study

Powerful and Mobile: Giant mobile Dust Control Design delivers extended Coverage

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The new trailer-mounted dust control system by Dust Control Technology features a throw range of 100 meters and the ability to deliver 140,000 square feet (15,500 square meters) of coverage area.

(From the archive of "[bulk solids handling](#)", article published in Vol. 36 (2016) No. 2/3 , ©2016 bulk-online.com)Dust Control Technology has announced the introduction of its new and largest trailer-mounted dust control system, a powerful atomized mist design featuring a range of 100 m and the ability to deliver 140,000 ft² (15,500 m²) of coverage area. The DustBoss DB-100 Fusion is powered by its own 480 V / 150 KW generator with a 6.8 liter John Deere Tier III flex diesel engine, all securely mounted on one of several dual-axle trailer options with stabilizing jacks.



Designed for large open-air applications, the new DustBoss DB-100 Fusion delivers effective particle control in a highly-mobile platform and with a 100-meter throw distance. (Pictures: ©Dust Control Technology)

Designed for large open-air applications such as mines, coal handling plants and aggregate operations, the unit delivers effective particle control in a highly-mobile platform that can be positioned directly at the source of dust-generating activities, even on sites without an available power supply. The new design can even be specified with a high-lift pump for drawing water from a stationary source, such as a private pond. “We had many discussions with customers who were interested in expanding their dust management coverage, after seeing our smaller DB-60 Fusion,” commented Dust Control Technology President Laura Stiverson. “We engineered the new design to meet those needs, yet still remain highly mobile, able to be towed easily just about anywhere on a job site.” Thought to be the most powerful mobile system available to control dust in large open areas, the versatile DB-100 Fusion features a 150 gallon fuel tank, providing about 32 hours of run time without refueling. Doors are equipped with hinges and door stops for easy access, and the generator’s engine compartment is fitted with sound attenuation. Day-to-day operation can typically be managed by the remotely located on/off switch outside of the enclosure. For convenience, a 120 volt receptacle for auxiliary tools and a plug-in for the battery charger and block heater are also located outside.



The new mobile dust suppressor delivers a range of 100 m (328 ft), and up to 15,500 m² (140,000 ft²) of coverage area.

To achieve its 100-meter throw distance, the DB-100 employs a 60 HP electric fan motor coupled with 10-90 PSI of inlet water pressure that's run through a booster pump to achieve pressures as high as 250 PSI total. Unlike industrial sprinkler systems used for dust management, which can require as much as 500 GPM (1893 LPM) of water, the DB-100 Fusion uses only about 38 GPM (143.8 LPM) to help avoid pooling or runoff. The unit shatters the inlet stream into millions of tiny droplets in the range of 50-200 microns -- an ideal size for suppressing fugitive

dust particles in most cases. The device can also be customized with alternative nozzle options for specialized applications. The standard machine is fed by a manifold of 30 nozzles that are specifically sized and positioned for the new design. The DB-100 Fusion features simple, user-defined oscillation, along with adjustable elevation from -7° to 45°. It can also be outfitted with a dosing pump to accurately meter in surfactants or tackifiers to further enhance binding of dust particles. The unit can be set up to run potable water and can also be outfitted with a selection of filters to handle non-potable water sources. For applications in which the water source contains high amounts of sediment, additional external filters are available. For operation in cold climates, heaters for the enclosure and heat tracing for pipes are available as options, and each machine is equipped with multiple automatic drain valves to enhance freeze protection. Users can easily set a custom oscillation range via the touch screen controls. The standard unit travels at a rate of 1 degree per second to provide ideal coverage, and the oscillator features a quick-release handle that allows the barrel to be repositioned in seconds, without using any tools. The touch screen on the control panel is also used to turn the fan and booster pump on and off, as well as to adjust the vertical pitch of the barrel using simple up/down arrows. When the generator is turned off, a battery backup feature automatically returns the machine to the horizontal position, which is safe for towing, before it shuts down completely.

Only a Water Source needed

By providing mobile power, the design requires only a water source for operation. “Our goal was to design a freestanding unit, which catered to customer needs without compromising performance, delivering easy transport and adaptability to a wide range of locations and conditions,” Stiverson said. Fire hoses and couplings are supplied and stored in easy-access tool boxes, along with a spare set of nozzles and basic tools. “We’ve equipped the new design as a turnkey solution,” Stiverson added. “It may seem like small details, but the objective was to include everything needed for routine operation and maintenance, ultimately delivering the most positive customer experience possible.” Maintenance requirements for the new design are minimal, even though the unit carries a 3-year/3000-hour warranty on the dust suppressor and a 2-year/2000-hour warranty on the gen set. If potable water is being used, nozzles typically need to be inspected just once per year. The turntable bearing on the oscillator should be greased annually or as needed for harsh service conditions and the fan’s motor and high-pressure pump should be lubricated every 10,000 hours. Like any diesel engine, the gen set should have regular inspections and changing of oil, coolant and filters. Although the new design is typically supplied to run on standard 480 volt power, customers

can specify the unit in a wide range of voltages to suit locations virtually anywhere in the world.