

Buffalo Turbine Explains How Turbine Blower Technology Improves Track Cleanup, Safety and Efficiency

For race tracks, cleanup is more than a maintenance issue. Every minute spent removing debris, rubber, aggregate, oil-cleanup material or moisture from the racing surface represents lost track time—and potentially a safety concern for competitors.

During a recent EPARTRADE Race Industry Now technical webinar, “Turbine Blowers in Motorsports: Track Cleanup, Safety and Efficiency,” Guy Gabbey, Sales Manager at Buffalo Turbine, joined host Joe Castello of WFO Radio to discuss how turbine blower technology can help race facilities clear surfaces faster while reducing labor and equipment requirements.

The conversation went well beyond simply moving air, examining turbine efficiency, directional airflow, horsepower requirements, moisture removal, equipment maintenance and how tracks should properly size a blower for their application.

Turbine Technology vs. Centrifugal Blowers

One of the most technical discussions centered on the difference between Buffalo Turbine’s turbine design and conventional centrifugal, or paddle-wheel-style, blowers.

According to Gabbey, Buffalo Turbine’s design is significantly more efficient at converting available power into usable airflow.

“Our machines are three times more efficient than the centrifugal paddle-wheel-style blower,” Gabbey said.

He explained that the difference becomes particularly apparent when comparing PTO-driven systems.

According to Gabbey, producing comparable performance with a paddle-wheel-style blower may require a 60- to 70-horsepower tractor, while a Buffalo Turbine PTO unit can perform similar work with approximately 20 horsepower.

That lower power requirement can have several practical implications for a race facility: smaller tow equipment, reduced fuel consumption and potentially lower operating costs.

“Because our machines turn more easily, you are using less fuel, whether it’s a diesel or the gas tow-behind units that we have,” Gabbey explained.

Why Nozzle Control Matters

Raw airflow is only part of the equation when clearing a racing surface.

Being able to place that airflow precisely where it is needed becomes particularly important when removing heavier material such as aggregate, rubber, dirt and other debris.

Gabbey explained that Buffalo Turbine's design maintains airflow as the nozzle changes direction.

"Because of our turbine technology, no matter where you put the nozzle, we have the same amount of air coming out," he said.

With some blower configurations, changing the direction of discharge can reduce effective power. Buffalo Turbine's directional nozzle instead allows the operator to concentrate airflow directly on the affected area.

"When you're getting into heavier debris, you can tweak that nozzle right in, point it right at the problem," Gabbey said.

For motorsports applications, that ability can be particularly useful when a cleanup crew needs to attack a specific section of racing surface rather than simply move loose material across a broad area.

Clearing Water and Accelerating Track Drying

Moisture presents another challenge for race facilities.

Rain is the obvious example, but tracks can also encounter standing water from surface "weepers," spills or vehicle-related incidents. Depending on the equipment available, clearing that moisture can mean the difference between a relatively short interruption and a lengthy delay.

Buffalo Turbine machines use ambient-temperature air rather than heated air. The high-volume airflow physically moves standing water away from the affected area while also assisting the natural evaporation process.

"Our machines are going to move that water out of your way, and it's going to aid in evaporation," Gabbey explained.

As the racing surface warms and evaporation begins, continually moving air across the surface accelerates the process.

"Our machine puts more air to it and speeds that evaporation to get you on the track faster," he said.

Remote Operation Designed for Rapid Deployment

Track cleanup equipment must also be simple to deploy.

At many facilities, the person operating the blower may not be a dedicated equipment operator. It could be a track employee or event worker who needs to respond immediately to an incident.

Buffalo Turbine has therefore developed its machines around straightforward connections and remote operation.

PTO and hydraulic versions use quick connections, while tow-behind machines feature a pin hitch that allows them to be pulled behind equipment ranging from UTVs and ATVs to golf carts.

Approximately 90 percent of the company's engine-driven units also feature wireless remote start, according to Gabbey.

From the remote, the operator can control starting and stopping, engine throttle and nozzle rotation. Preset nozzle positions can further simplify operation.

"Everything except for driving itself, it can be done from the remote," Gabbey said.

That allows the operator to remain in the cab of the tow vehicle rather than continually turning around or physically adjusting the blower.

The technology represents a considerable evolution from Buffalo Turbine's early equipment. Gabbey noted that the company has been manufacturing blowers since 1945, when nozzle direction on the original PTO machines was controlled manually with a crank. Electric controls followed, and Buffalo Turbine has spent approximately the past two decades developing its wireless control systems.

From 14 to 40 Horsepower

Buffalo Turbine currently offers roughly 30 machine configurations covering applications well beyond motorsports.

Engine-driven machines range from approximately 14 horsepower through 40-horsepower tow-behind models, while the overall product range includes tow-behind, stand-on, PTO and hydraulic configurations.

Gabbey said the company's 26-horsepower machine is its highest-volume model overall, with extensive use in the golf industry.

For racetrack applications where significant amounts of material may need to be moved, Buffalo Turbine's 40-horsepower machines can handle organic debris, dust, stone and aggregate.

The same technology is used in demanding road-construction applications. Gabbey noted that DOT and paving operations use turbine blowers behind milling, grinding and vacuum equipment to prepare surfaces for paving.

That ability to remove fine material and aggregate translates directly to motorsports, where maintaining a clean racing surface is critical.

Matching the Machine to the Track

One mistake Buffalo Turbine sees customers make is assuming that more horsepower is automatically better.

According to Gabbey, both undersizing and oversizing can create unnecessary problems.

A customer may purchase a smaller machine because it represents a substantial improvement over existing equipment, only to discover that it is insufficient for the size of the area being maintained. Conversely, another customer may select a 40-horsepower machine for an application that could be handled efficiently by a smaller and less expensive unit.

Buffalo Turbine's sales process therefore begins with the application rather than the machine.

The company typically asks three fundamental questions: What equipment will be used with the blower? What material needs to be moved? How large is the area that needs to be cleared?

“Once we have that information, we can typically narrow down to two or three machines of what’s going to fit best for your application,” Gabbey said.

Reducing Cleanup Time and Labor

The exact reduction in cleanup time varies significantly depending on the material, surface and application, Gabbey cautioned.

However, he pointed to experience in other industries as an indication of the potential productivity gains.

In golf-course applications, Gabbey said superintendents have reported workload reductions associated with the equipment. In pavement applications, he said some customers' studies have found that a single blower can replace the clearing work previously requiring three employees.

For a racetrack, the value is not simply labor savings.

Minutes saved during each cleanup can accumulate over an entire event. Faster removal of debris or moisture can mean more racing, fewer interruptions and a quicker return to competition after an incident.

Low-Maintenance Turbine Design

Because cleanup equipment may sit idle and then suddenly be required during an event, reliability is particularly important.

For engine-driven machines, routine maintenance primarily consists of conventional engine service, including oil changes and spark plugs.

The turbine itself requires relatively little maintenance. Operating in extremely dirty environments can eventually cause material to accumulate on the turbine and reduce airflow, Gabbey explained, but cleaning can be straightforward.

“Simple degreaser and a garden hose—wash it out, back to new,” he said.

PTO units are similarly designed for low maintenance, with Gabbey recommending gearbox oil changes approximately every 50 to 100 operating hours.

The simplified turbine system also provides a maintenance advantage compared with paddle-wheel blowers containing chains and other components that may require lubrication or disassembly when contaminated with debris.

Designed for Transport Between Tracks

For teams, sanctioning organizations or contractors working at multiple facilities, portability can be as important as outright airflow.

Buffalo Turbine's tow-behind machines can be configured with turf-style trailers for use around a facility or DOT-approved trailers for highway transportation.

The trailer assembly can also be removed, converting a machine into a more compact skid-mount configuration that can be transported alongside other equipment.

Buffalo Turbine's stand-on model provides another option, with Gabbey citing a transport speed of approximately 12 mph for moving around a facility.

Precision Manufacturing and a 10-Year Warranty

Durability was another major theme of the discussion.

Gabbey said Buffalo Turbine sources as much as possible from the United States and places a strong emphasis on controlling manufacturing quality.

“Our major point of emphasis here in this building is precision manufacturing,” he said.

That is especially important for motorsports equipment, which can experience vibration, rough surfaces and less-than-gentle handling during an event.

Buffalo Turbine backs its machines with a 10-year warranty, which Gabbey connected directly to the company's manufacturing processes and material selection.

“We’re using high-grade materials to make sure that that frame and turbine do not fall apart,” he said.

Track Safety Remains the Priority

Ultimately, the technical advantages of the equipment come back to one objective: maintaining a clean and safe racing surface while minimizing downtime.

Gabbey pointed specifically to Buffalo Turbine's long-standing involvement with NHRA drag racing, where surface condition is critical at every level of competition.

“Safety, safety, safety, safety,” Gabbey said. “We want the tracks clear. We want them running as fast as they can, as far as they can, for as long as they can.”

Removing pebbles, rubber, aggregate, water and other contaminants quickly protects not only the racers but also track personnel and spectators while helping race organizers keep an event on schedule.

“Our machines get you back on the track faster, get all that debris off, make sure that the safety aspect is top notch,” Gabbey said.

For facilities trying to maximize available track time, the blower may appear to be relatively simple support equipment. But as the discussion demonstrated, the engineering behind airflow efficiency, nozzle control, power requirements, maintenance and deployment can have a direct impact on how quickly racing resumes when the track needs attention.

And in motorsports, every minute of recovered track time counts.

For more information, [watch the full webinar here.](#)