

ENGINEERING
TOMORROW


Danfoss

Case Study | ABI Attachments

Engineering Tomorrow Keeps the Field **Playable** and **Safe**

With heads held high, UCLA celebrates its quarter-final victory over the University of Arizona in the 2019 NCAA Women's College World Series. Following the celebration, Chuck White, field turf superintendent for USA Softball, and his grounds crew have less than 15 minutes to prepare the field at ASA Hall of Fame Stadium in Oklahoma City, Oklahoma, for the upcoming Oklahoma/Oklahoma State match. ►





THE GROUNDS CREW HAVE **LESS THAN 15 MINUTES** TO PREPARE THE FIELD AT **ASA HALL OF FAME STADIUM**



**ASA Hall of Fame Stadium
was home of the 2019 NCAA
Women's College World Series.
The stadium hosts 25 to 30
events per year.**



Thinking about his job, White said, "If an umpire comes out to a ball game, does his job, and you don't know his name, he did his job." Very rarely do people think about the groundskeepers and other behind-the-scenes staff when it comes to playing the sports they love, let alone the tools and techniques used. These groundskeepers mow the field, chalk the lines, and maintain the playing surfaces to be the safest and most playable that they can be.

For years, White and his team prepared their fields with hand rakes and drag mats and could only perform in-depth aeration and grooming work twice a year. Handling 25 to 30 events per year, White's fields did not see the level of maintenance that he desired. This all changed when White received the new ABI Force z23s, which helped to make those 15-minute turnaround times more manageable and allowed him to perform in-depth field grooming once or more per week.

Innovation drives z23s

ABI Attachments was incorporated in the late 1990s as Absolute Innovations and began producing its TR3, a three-point hitch mounted drag rake, from its original facility located in Osceola, Indiana. Through a chance phone call, ABI was encouraged to exhibit the TR3 and other tools at an equestrian show marketing them for arena preparation and 'knocked it out of the park.' These strong sales then led to ABI moving to its current location in Mishawaka, Indiana, in 2016.

Eventually, ABI Attachments began selling some of their drags and rakes to baseball and softball field maintenance crews. Tools were selling well when in 2011 another manufacturer created a flyer featuring the Rascal, another ABI drag rake, on the rear of their own aerator machine. Through a few conversations, the ABI z18 ballfield groomer was born utilizing the aerator manufacturer's vehicle frame and ABI's various grooming tools. The z18 was a very good machine, but, due to the vehicle frame being provided by an outside supplier, limited design flexibility left ABI wanting.

In early 2018, ABI Attachments was at a crossroads when the z18 vehicle frame manufacturer exited the market. The ABI team met to assess its options: continue to rely on an outside frame provider or become a full vehicle OEM. The decision was made to follow the unofficial company motto: "always be innovating."

"The way I do business is to seek out some of the leading people in the industry and ask, 'If you had a wish list, what would you like to see? What would you like the tool to do?'" said Kevin Keigley, owner of ABI Attachments. ABI had success with the z18

platform, but, with the need to develop a new machine looming, his engineering director took the list of requested machine upgrades and got to work.

"I had a big fear at the start of this project that I wasn't going to find these big companies willing to work with somebody so small," said Nate Smith, ABI's director of product development and engineering, when speaking about contacting Hydro-Gear, a Danfoss joint venture company and a leading supplier of hydrostatic and electric drivetrains for the turf industry. Smith, a former lawn mower design engineer, spoke with David Shier, Hydro-Gear's applications engineer. The pair discussed Smith's requirements to build an upgraded machine that would service his ball field grooming needs and have many applications beyond. After a year of machine development, the z23s was born.

z23s gets the job done

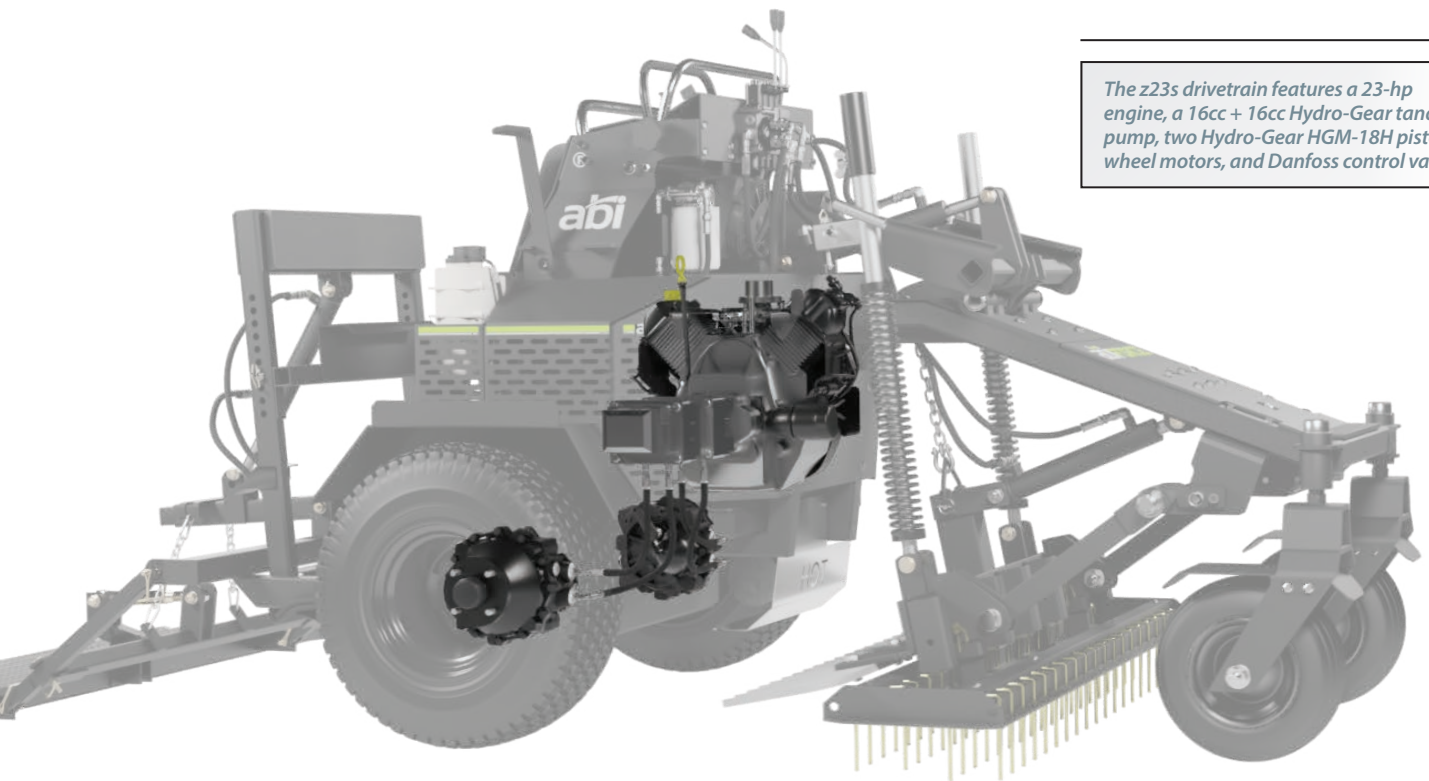
The z18 boasted an 18-hp engine, two 6cc Hydro-Gear pumps, and two gerotor wheel motors, but the new z23s drivetrain features a 23-hp engine, a 16cc + 16cc Hydro-Gear tandem pump, two Hydro-Gear HGM-18H piston wheel motors, and

Danfoss control valves. This upgraded drivetrain provides more drive power and more precise ground control over the previous generation. Customers can select from pneumatic drive tires or low ground compaction tweels.

While the drivetrain is the most impactful part for Hydro-Gear and Danfoss, the machine's purpose is to use the various attachments to prepare the ground. As White stated, "Most people don't understand that I'm working on a living, breathing surface. I've got to be able to manage that surface and move that material and put it back where it's supposed to be."

The z23s offers mid- and rear-mount attachments for deep ripping (blades and scarifiers), aerating (slit and core), grooming (VibraFlex), leveling/grading (mini-box), and finishing (Pro and Fine brooms). Unlike many competitive machines, the z23s also has a laser grading option that allows for more accurate field leveling, assisting in draining rain water, and providing a more consistent playing surface. On top of all this, the z23s also supports an optional front-mounted seed and fertilizer spreader. ►

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“

I’ve built, designed, and renovated fields, and I’ve never had one piece of equipment that impacts what I do as much as the ABI Force. One of the things that my dad told me from the very beginning, ‘You can’t do your job, and do it well, unless you have the right equipment.’”

*Chuck White,
field turf superintendent,
USA Softball*

While the tight maneuverability feature makes this machine the ideal solution for sports turf maintenance, it also lends possibilities beyond this market.

“We do not want to pigeon hole it. Its versatility, I think, is what makes it so unique,” commented Lindsey Paholski, ABI’s senior marketing manager. Customers continue to find unexpected ground preparation applications for the Force and its attachments in landscaping and light construction.

Added Smith, “Whether it’s for soundness of horses or safe playable baseball fields, we are trying to present the material in the best condition possible.”

For a machine that is ever evolving, customers are constantly pushing the boundaries and are happy to find a partner in ABI to make those ideas a reality.

“It just does so many things for us, and we haven’t discovered all the things that it can do for us yet. And we’re continuing to work with ABI to develop new tools,” commented White.

Smith noted, “I don’t have to know how to maintain a baseball field, I can rely on those folks; I have to listen to my customer and have them tell me ‘what do you need it to do?’” It is this type of customer partnership that supports ABI’s company principles of innovation, integrity, and service.

As mentioned on ABI’s website, “an innovative tool isn’t worth building or selling unless it helps our customers get their work done better and easier, every day, for years!”

White is living proof of the benefits that the Force has provided him and his team. “I’ve built, designed, and renovated fields, and I’ve never had one piece of equipment that impacts what I do as much as the ABI Force. One of the things that my dad told me from the very beginning, ‘You can’t do your job, and do it well, unless you have the right equipment.’” ■

