

Hayter Continues Its Tradition of Excellence in 3D Design with Pro/ENGINEER®

Premium Lawnmower Manufacturer Sees Improved Design Efficiency with 3D CAD

Hayter Limited, Spellbrook, England

Founded 60 years ago, Hayter was an early pioneer of the rotary lawnmower in the United Kingdom, and has since become a household name with both the home gardener and commercial landscaper.

It all started when local builder Douglas Hayter needed to get to the drying sheds where he used to cure wood, and it was often difficult to make his way through the overgrown grass. He solved the problem by mounting a two-stroke motorcycle engine to the top of a dustbin lid, then added some wheels and attached a sharpened blade to the crankshaft—a rotary mower was born. Requests for copies of his rotary mower converted Hayter from homebuilder to mower manufacturer.

Today, Hayter mowers are the premium brand in the United Kingdom. The company sells through specialist dealers, and its products are designed for commercial landscape gardeners and contractors, large municipalities, as well as high-end consumer use.

The Challenge: Adopting 3D CAD

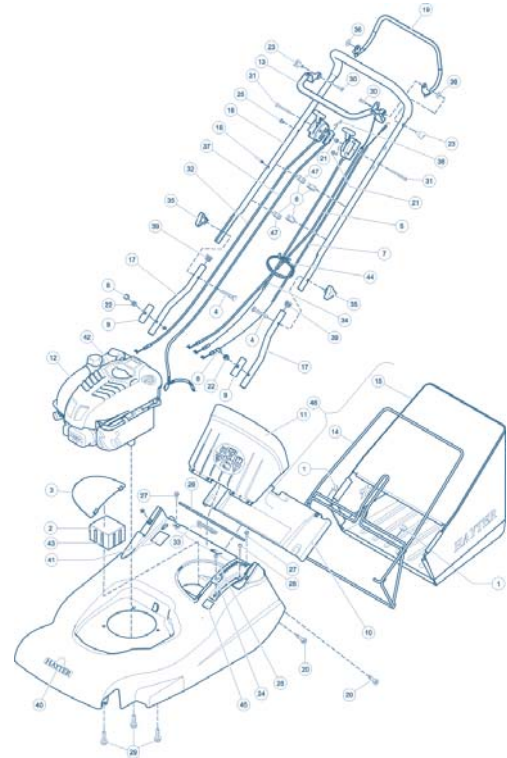
In 2003, Hayter's sister company, Murray, decided to upgrade to a 3D design platform. After extensive benchmark testing with at least a dozen vendors, Murray chose the PTC® 3D product design software solution, Pro/ENGINEER® Wildfire™. This design platform was selected based on its powerful functionality and ease of use. Hayter had been considering a change to 3D design, and this corporate decision suddenly made it a reality.

The Solution: Easy-to-Learn Pro/ENGINEER Wildfire

Since Hayter was initiating designs for two important new product lines, there was a real concern about the learning curve for the new software. And since Hayter's engineers were only familiar with 2D design software, they realized they would need to come up to speed quickly on the 3D environment. Amazingly, after less than four days of training, Hayter engineers were able to immediately define complex 3D product assemblies with the Pro/ENGINEER Wildfire software; the positive business impact of Pro/ENGINEER was realized quickly with the simple user interface.

The Result: Increased Design Productivity

Hayter has achieved a two-month reduction in the design cycle of the mowers' aluminium decks by replacing its 2D design application with Pro/ENGINEER Wildfire. Some of the improvements seen to date include easier visualization of the design in 3D, increased automation with assembly management, and improved aesthetics achieved with Pro/ENGINEER Interactive Surface Design Extension (ISDX). As Hayter engineers continue to utilize the many features of Pro/ENGINEER, they anticipate additional efficiencies in the future.



Exploded diagram of Harrier 56 mower, designed with Pro/ENGINEER Wildfire. These easily generated diagrams are now included with customer support materials.

“Hayter was one of the first customers in the UK to go live with Pro/ENGINEER Wildfire. Our first experience with Pro/ENGINEER was really fantastic; the difference in working with 3D was astounding. We look forward to a long future with Pro/ENGINEER as our company standard for 3D CAD.”

– Steve Maryniak,
Engineering Manager,
Hayter Limited

On-the-Job Learning

The seasonal sales cycle for lawnmowers means that it is critical for Hayter to get new products to market on schedule. Therefore, decreasing time-to-market is a constant goal for the engineering team.

With two new product lines in development—the Harrier 56 consumer mower and the MT313 commercial ride-on mower—the pressure was on. When Hayter engineers learned that they would be transitioning from 2D to 3D and learning Pro/ENGINEER Wildfire at the same time, they were a bit apprehensive.

These fears were erased after Engineering Manager Steve Maryniak discovered that Pro/ENGINEER Wildfire’s user-friendly graphical interface delivered a virtually seamless transition. He explains, “We found Pro/ENGINEER Wildfire to be very easy for modelling 3D assemblies.”

Newfound Benefits of 3D Design

“We were a pretty traditional design shop,” states Maryniak. “We made a lot of physical prototypes to test our design concepts. Our approach is now evolving to take a lot of that concept work back to the screen.”

A Pro/ENGINEER 3D model makes it easy to visualize the design and improves communication, especially with non-technical departments. With a realistic model, the marketing department is able to get input early and ensure that the design is truly capturing the market need. In addition, design reviews are more efficient because the 3D data makes it a lot easier to clearly communicate the design intent.

“Hayter was one of the first customers in the UK to go live with Pro/ENGINEER Wildfire. Our first experience with PTC was really fantastic and the progress was astounding,” says Maryniak. “We did experience a few hiccups in the subsequent months following our implementation; however, PTC helped us get back on track and we look forward to a long future with Pro/ENGINEER as our company standard for 3D CAD.”

Smoother Manufacturing and Assembly Process

With Pro/ENGINEER, design changes are now automatically reflected in the manufacturing model without having to make manual updates, saving time and reducing errors. The engineering team also found that better data accelerates the toolmaking process, resulting in a 25–30% improvement in tooling lead times.

Hayter uses PTC’s assembly management tools to reduce tedious tasks like building the bill of material (BOM). Plus, assembling the parts in 3D enables Hayter to check for interferences before problems show up in a physical prototype. In one instance, Maryniak recalls how engineers hadn’t accounted for the height of the head of a bolt attaching the cover to the mower’s belt. “Interference checking prevented us from making some fairly basic, yet costly errors.”

Hayter is also using Pro/ENGINEER to create better support materials. The parts book now includes exploded images taken directly from Pro/ENGINEER; previously, drawings were produced separately using Adobe Illustrator and managed independently of the design data.

Lawn Mower Aesthetics

How stylish is your lawn mower? You may think that function always beats form in the lawnmower industry, but Maryniak reports that styling is becoming more and more important with consumers.

“Our customers expect the product to work, and for it to be durable. But styling makes an initial impact, and it is a differentiator for Hayter; the product that catches the buyer’s attention has the advantage. With Pro/ENGINEER Wildfire, we have more flexibility in the early stages of design. This lets us be more responsive to initial feedback from the sales force, dealers, and distributors.”

Pro/ENGINEER Interactive Surface Design Extension (ISDX) allows Hayter to consider the aesthetics of a product and develop an eye-catching design. Pro/ENGINEER ISDX makes it easy to create the right look to catch the consumer’s attention. And it is 100% integrated with the other Pro/ENGINEER 3D design functions, so it simplifies the design of a stylish mower.

The Future for Hayter

Using PTC solutions has enabled Hayter to reduce front-end design time by more than 300 working hours, and cut the time to manufacture the mowers’ aluminum decks by two months. By sharing its 3D models with sales and marketing, the design team has also been able to improve collaboration throughout the product lifecycle. The company’s commitment to product excellence has won the loyalty of its customers; over 80% of customers consider replacing their aging machines with new Hayter models.

Hayter’s superior products and loyal customer base recently caught the eye of The Toro Company, the \$1.6 billion (US) industry giant, which was looking to expand its UK presence. In February of 2005, Toro acquired Hayter, recognizing the company’s well-established base of engineering and its commitment to product excellence.

And a bonus for the Hayter engineers: Toro has been a Pro/ENGINEER user for years, and the design teams from both companies have started working together to leverage each other’s strengths.