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DualVee®, Meet Blendo

Before MythBusters, Jamie Hyneman Found Use for DualVee Bearings in Super-tough Robot

October 14, 2008 - Bishop-Wisecarver Corporation founder Bud Wisecarver often says that the uses for DualVee bearings can only be limited by one's imagination.

Enter Jamie Hyneman, founder of San Francisco visual effects shop M5 Industries and host of the Discovery Channel's MythBusters, who discovered DualVee bearings at a surplus store years before his television debut.

"I ran across them and thought they had an unusual design that was really quite elegant," Hyneman says of DualVee. "I looked at the grooved edge and thought, 'Hmm, what's that for?' I snagged a bunch of them and kept them around the shop."

Hyneman put DualVee bearings to work in Blendo, a new class of fighting robot that used centrifugal force to conquer its opponents. Basing the robot's design on an inertial weapon concept, Hyneman built Blendo with a lawnmower engine and a Chinese wok. He added stubby blades to the wok's exterior, and bolted the whole thing to a steel ring that formed the robot's perimeter. The exterior spun at 500 rpm, powering Blendo's sinister spin and blades that sliced through the competition at 80 miles per hour.

Blendo's exterior and blades worked as the robot's armor and weapon; the only way to hurt it was to hammer it, penetrate it, or flip it over. Easier said than done, Hyneman says. Blendo's opponents at San Francisco's Robot Wars and Comedy Central's BattleBots quickly learned that hitting a spinning object means your weapon is going to fly. Battles with Blendo ended in mere seconds, and soon, Hyneman's robot was ruled so completely dangerous and unstoppable that event organizers banned it from the scene.

DualVee contributed to Blendo's reputation for arena mayhem. Hyneman says he mounted about 12 DualVee bearings to Blendo's beveled chassis edge, which allowed him to control the robot's ample mass with some precision. The bearings kept the spinning mass centered on the chassis and allowed it to withstand an impact.

"To accomplish the same thing with normal bearings would have required a more complex design," Hyneman says. "I would have had to have two bearings perched at an angle, which would have been complicated from a mounting point of view. In this case, all I had to do was give the grooved bearings a vertical axis and mount them on a circular fly wheel. It was a simple and robust design."

Hyneman's visual effects experience, his passion for fighting robots and his subsequent notoriety eventually led the producers behind MythBusters to approach him about hosting a show. Today, Hyneman is known around the world for showing us how things work; really, how the world works. And, while Blendo is long retired to a shelf in the M5 Industries shop, its name remains synonymous with powerhouse robotics.

It all started with an idea and the imaginative use of pieces and parts.

"DualVee bearings have a design you don't see a whole lot," Hyneman says, "but they allow you to do what you might not have been able to otherwise."



Photo courtesy of Jim Smentowski, RobotMarketPlace.com

Hyneman's Advice: Get Your Hands Dirty

Jamie Hyneman distinguishes fact from myth on the hit show MythBusters, but he's also known for his love of machines and gadgets and his ability to find creative solutions to complex problems. It's an approach Bishop-Wisecarver Corporation can relate to after nearly 60 years in guided motion technology. The company has also spent the last 50 years supporting career technical education in schools — education that gives students the tools to find innovative solutions to problems related to engineering, manufacturing and science.

We asked Hyneman for his thoughts on the role of innovation and education in the United States. His response? Get your hands dirty.

"Do the math, think it through, use the CAD if you have it, but get those hands dirty," Hyneman says. "There is more to this than you may think; innovation and understanding of dynamics in any complex situation requires internalizing all the factors at play with a problem — visualizing the whole thing as a composition. If you don't have your own blood on your tools, as it were, you don't