



OPTIMIZED FOR ALUMINUM

A new bandsaw blade cuts through aluminum castings with ease, solving a problem for many manufacturers

by Jimmy Myers, senior editor

Aluminum is a soft metal, but when it comes to cutting some of its alloys, manufacturers struggle. The culprit is the silicon that's added to aluminum when it's used in castings, which reduces its melting temperature and improves fluidity. But the silicon also creates an abrasiveness that can spell trouble for bandsaw blades. That's what led M. K. Morse Co. to develop a new line of aluminum foundry blades that can outlive and outperform other blades.

M. K. Morse has been a metalcutting expert for more than 50 years. The company has produced a line of carbide-tipped bandsaw blades for 10 years, but decided recently to tackle →



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aluminum foundry cutting with its M-Factor designs.

Jeff Guritza, business development manager at M. K. Morse, and Pete Vandervaart, senior product development engineer, say the new blades are a direct response to specific needs shared by their customers and specific changes they've identified in the market.

THE CASTING FACTOR

"Cutting aluminum can be tricky," Vandervaart says, "because so many kinds of aluminum are out there, especially in aluminum castings, which contain a lot of silicon. Even though the aluminum itself is soft, some of the components within the aluminum alloys can be abrasive."

M. K. Morse offers two versions of M-Factor foundry blade products as part of its bandsaw blade offerings. Both blades are optimized for aluminum cutting, which Vandervaart says is the fastest growing market right now. Utilizing carbide tips, a stronger body to the blade, and a

triple tooth geometry, the M-Factor blades can stand up to the abrasive aluminum.

The first M-Factor blade can handle the complex gate and riser issue common in aluminum casting applications, which involves making contoured cuts to follow curved surfaces.

For those unfamiliar with the aluminum foundry process, there are three important words to remember: sprues, gates and risers. A sprue is a hole in the mold where the molten aluminum is poured in. Gates are channels that connect the sprue to the mold cavity. Risers, which are also called feeders, are channels that let the manufacturer know when to stop pouring the molten aluminum. Risers also help to reduce shrinkage within the casting.

Vandervaart explains that making the contour cuts is complicated because of the difficult corner radiuses the blade has to follow to remove the excess material. M. K. Morse developed a set-tooth foundry blade →



Utilizing a triple-tooth geometry and carbide tips, M.K. Morse's M-Factor aluminum foundry blade stands up to the abrasive properties of aluminum castings.



that can make the difficult turns and provide enough clearance so the body of the blade can move inside the cut.

“If you don’t have enough clearance,” Vandervaart notes, “the body of the blade gets pinched and breaks.”

The second version of M-Factor blade is for straight cuts that leave a finished machine surface. For manufacturers who don’t want to go through a secondary finishing process, the “unset” version of the blade is a good fit. This tooth geometry leaves a cleaner finish than the set-tooth version made for contour cuts.

LONG LIFE AND REPEATABILITY

Guritza and Vandervaart are tight-lipped when it comes to exactly how they are able to create aluminum foundry blades that have a longer life than other foundry blades, but say they made proprietary advancements in the design and manufacturing process that

resulted in the significant, predictable performance improvements.

M. K. Morse is using high-performance backing steel to reduce band breakage due to backer fatigue. The company also has specially formulated submicron grade carbide to provide a long-lasting product.

“It’s really in how you process the material and the steps that are taken to do so,” Vandervaart says. “The combination of precision grinding and the way that we break up the chip improves the life of the M-Factor blades.”

Moreover, more precise manufacturing and repeatability are huge in bandsawing. Vandervaart revisited the design of the M-Factor blade several times and made changes to achieve the repeatability that is so important in a quality blade. For the set-tooth version, he says every time the engineers at M.K. Morse bend a tooth on the blade, every tooth in the triple tooth design is bent the same amount consistently throughout the length of the blade. →

M.K. Morse designed the M-Factor aluminum foundry blade for tough jobs, like cutting off risers and gates on aluminum castings. A stronger body and carbide tips increase the blade life.



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“Cutting aluminum can be tricky because there are so many different kinds of aluminum out there.”

Pete Vandervaart, senior product development engineer, M.K. Morse

“That’s one of the struggles in the industry – the repeatability in the set teeth,” Vandervaart explains. “That’s what disrupts the finish in the final part.”

Overall, M-Factor blade benefits include fast cutting, long life and a smooth finish. The blades are well-suited for a range of applications, including aluminum castings, composites and nonferrous metals such as brass, bronze and aluminum. They are also available in the following

sizes: 0.5 in. by 0.025 in., 0.75 in. by 0.035 in., 1 in. by 0.035 in. and 1.25 in. by 0.042 in.

VALUE THROUGH INNOVATION

Guritza explains that it’s important to evolve and develop new products because every year, metal products come to market with unique metallurgy, unique alloys and, in turn, manufacturing challenges that require out-of-the-box thinking when it comes to material separation.

“We really pride ourselves on our engineering innovation – it’s a strategic priority,” Guritza says.

“We have an experienced team of materials scientists and engineers in our technology center that continually develop the best products based on the needs of the marketplace and our customers.”

Customers differ on what they want out of a bandsaw blade. Some push their blades harder to get more parts on the production line at a faster rate, which means they aren’t necessarily

The advertisement banner for Scotchman features the brand name in a large, metallic, 3D font at the top left. To the right of the logo is a circular seal that reads "SCOTCHMAN BEST IN THE BUSINESS WARRANTY" and an American flag graphic with the text "AMERICAN MANUFACTURER". Below the logo, the slogan "THE NAME YOU CAN COUNT ON" is written in bold, black, sans-serif font. The center of the banner displays five different industrial cutting machines in blue and orange. At the bottom, there is a dark blue banner with a red starburst graphic on the left that says "SEE US AT... FABTECH BOOTH C24047". To the right of this are five blue arrow-shaped boxes containing the words "QUALITY!", "DEPENDABILITY!", "VERSATILITY!", "PRECISION!", and "POWER!". On the far right of the bottom banner, it says "Call 1-800-843-8844 to set up a DEMONSTRATION at your work site!". At the very bottom of the banner, in small white text, it lists contact information: "Call Toll Free 1-800-843-8844 or Call Direct 605-859-2542 • Website www.scotchman.com • Email info@scotchman.com • Scotchman Industries, Inc., P.O. Box 850, Philip, SD 57567".

interested in blade life. Some want to reduce their scrap, while others want a quality finish.

“It’s important when you’re partnering with the customer to understand what their prioritization is when it comes to cutting performance and marrying the proper blade configuration and design to optimize it for their specific application,” Guritza says.

Guritza says the team at M.K. Morse are astute at what he calls “predictable performance.” For instance, they consider the application, the speed and feed rates needed for the material being cut, and based on the geometries and manufacturing process they impart on their blades, they have confidence that the blade will perform to the expected standard. ■

M. K. MORSE CO.