BY FFJOURNAL STAFF

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**Primary distinctions between cutting ferrous and nonferrous materials lie in the blade type, speed and feed rate.**

# BENCHMARK

## Metal saw manufacturer helps job shops and fabricators find the right solution for cutting ferrous and nonferrous materials

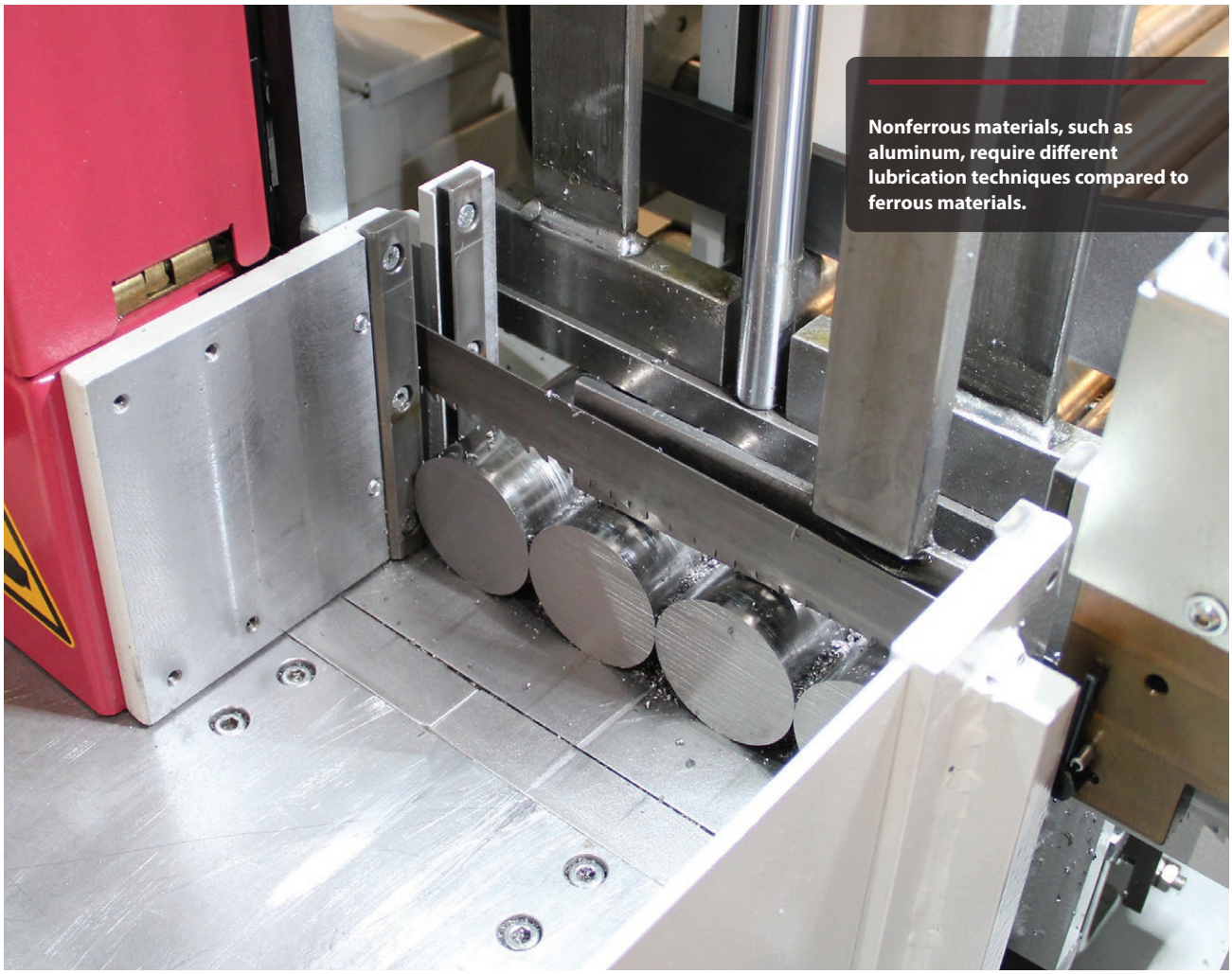
When it comes to finding the most efficient, cost-effective sawing solutions, the answer is simple if the application fits a specific design or model of saw. However, in cases where a job shop or fabricator has unique requirements, an in-depth analysis of criteria such as production volumes, product mix, and material flow is needed to determine the best option. It's also important for companies that are navigating the metal cutting tools market to find the right supplier.

Behringer Saws Inc. offers an extensive lineup of more than 150 different models of saws, including bandsaws and circular saws, for a wide range of end users and applications.

Selecting the right saw becomes more complex when a customer requires the ability to cut high volumes of both ferrous and nonferrous materials. If the application is strictly nonferrous, Behringer has a complete line of machines designed specifically for that purpose. Similarly, there are dedicated models for ferrous applications, whether cutting mild steel, titanium, Inconel, or other difficult alloys.

When a customer aims to cut both ferrous and nonferrous materials quickly and efficiently, but the budget allows for only one machine, a detailed discussion is essential. Before delving into the specifics of selecting a versatile saw, it is important to understand the key differences between sawing ferrous and nonferrous materials. The primary distinctions lie in the blade type, speed and feed rate. Additional factors such as lubrication and chip evacuation also play crucial roles.

Efficiently sawing aluminum for high-production applications demands high speeds for both the blade and the blade feeding mechanism. For example, a standard ferrous production bandsaw typically operates with a blade speed between 100 and 200 surface feet per minute (SFM), while a high-production aluminum bandsaw reaches 3,000 to 4,000 SFM.



Nonferrous materials, such as aluminum, require different lubrication techniques compared to ferrous materials.

Similarly, a production ferrous circular saw runs at approximately 250 rotations per minute (RPM), whereas a high-production aluminum saw operates at around 3,000 RPM. These elevated blade speeds are necessary to allow the saw head to quickly travel through the material while maintaining the required material removal rate.

## DESIGN MATTERS

However, simply equipping a saw with a high-speed motor and gearbox does not automatically make it suitable for nonferrous applications. Other essential design factors must be considered, including machine rigidity, chip evacuation, vibration and noise reduction.

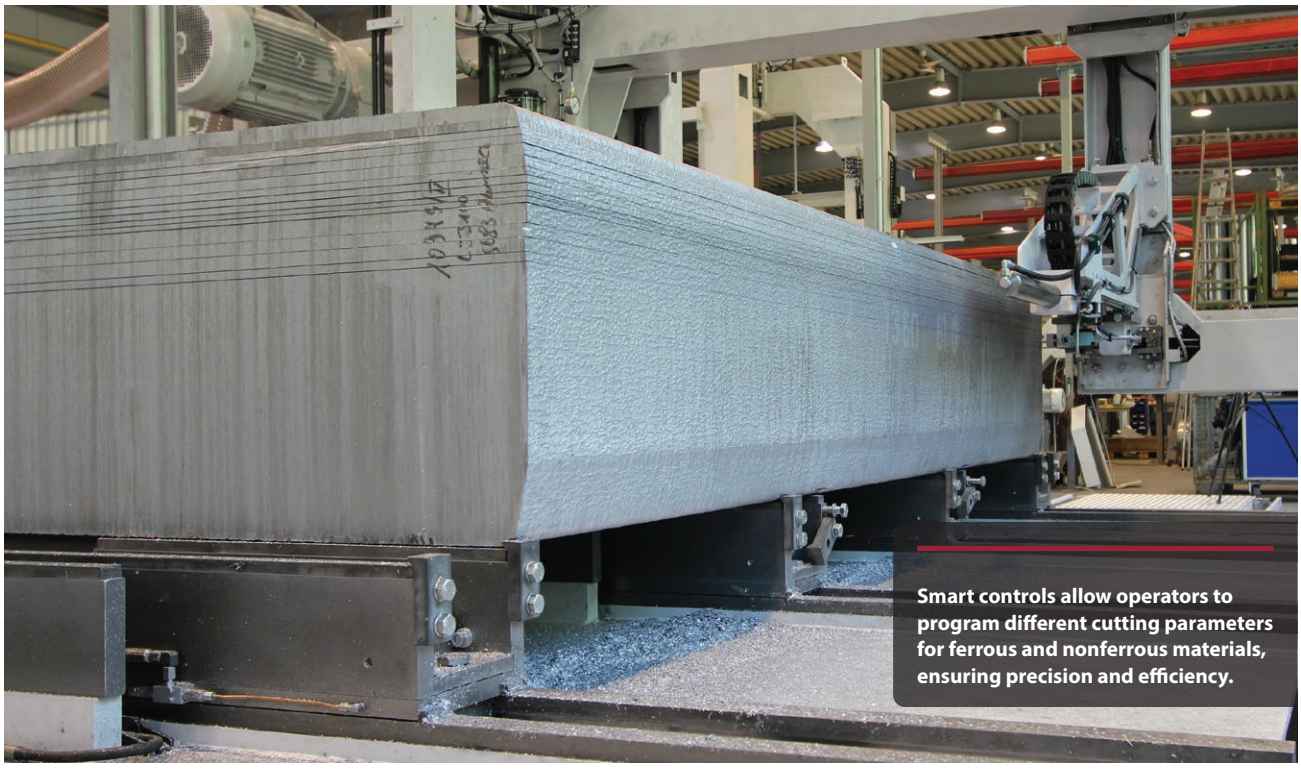
Given the substantial material removal rates, effective chip evacuation is critical for ensuring safety, cleanliness, blade longevity, and high-quality cuts. Some machines generate lightweight chips that require vacuum evacuation ports, whereas other applications produce heavier chips that can be managed using a high-volume conveyor system.

Another important aspect to consider is lubrication. Nonferrous materials, such as aluminum, require different lubrication techniques compared to ferrous materials. Mist or flood lubrication is often used to keep the blade cool and prevent material from adhering to the blade teeth. In contrast, ferrous materials typically require oil-based lubricants to minimize heat buildup and prolong blade life. Understanding these differences ensures the machine operates efficiently without causing excessive wear on the blade.

Noise reduction is another factor that influences machine selection. High-speed saws for nonferrous materials generate significantly more noise than lower-speed ferrous saws. To address this, manufacturers incorporate special enclosures and damping systems to reduce the sound levels, improving the working environment for operators. These design features contribute to better workplace safety and comfort, making the saws more user-friendly in high-production settings.

> **“Effective chip evacuation is critical for ensuring safety, cleanliness, blade longevity, and high-quality cuts.”**
>
> **Behringer Saws Inc.**

Specific application requirements dictate a company’s choice between a high-production ferrous or nonferrous saw. If an end user needs to cut both materials efficiently with a single machine, the company and the supplier need to look at product mix, material dimensions, production goals, tolerances, and cut quality expectations. Among these factors, product mix and material sizes are particularly important, as



Smart controls allow operators to program different cutting parameters for ferrous and nonferrous materials, ensuring precision and efficiency.

they guide recommendations on the ideal saw type—whether circular or band saw—and the appropriate speed range that will optimize efficiency for both material types.

## COLLABORATION

Behringer collaborates closely with the end user to develop the best possible solution. Understanding the intricacies of the customer's workflow allows Behringer to provide tailored recommendations that maximize efficiency and cost-effectiveness while ensuring high-quality cuts.

In some cases, hybrid saws that incorporate variable speed capabilities and specialized blade options offer a suitable compromise. These machines can adjust blade speeds and feed rates dynamically to accommodate different materials. While they may not match the absolute performance of dedicated machines, they offer a viable solution for shops that need versatility without investing in multiple saws.

Additionally, advances in automation and CNC technology have made modern saws more adaptable to mixed-material operations. Smart controls allow operators to program different cutting parameters for ferrous and nonferrous materials, ensuring precision and efficiency. These technological improvements continue to push the boundaries of what is possible in the world of industrial sawing.

**Some machines generate lightweight chips that require vacuum evacuation ports. Heavier chips can be managed using a high-volume conveyor system.**

## MATCHING SPECS

A machine engineered to a customer's application is the most effective way to cut nonferrous materials in high-production settings. If budget constraints or a diverse product mix require both ferrous and nonferrous materials be cut on the same machine, special accommodations and machine options can be implemented to meet the customer's needs. By leveraging machine customization, hybrid solutions, and automation, Behringer ensures that customers receive a sawing solution that enhances their production capabilities while maintaining operational efficiency.

Ultimately, the goal is to match the right saw to the right application. Whether it's a dedicated high-speed saw for nonferrous materials or a versatile machine that handles a mix of ferrous and nonferrous materials, Behringer continues to deliver top-tier solutions designed to drive efficiency and productivity in industrial sawing operations. FFJ

**Behringer Saws Inc.**, 610/286-9777, behringersaws.com.