# THE ACQUISITION OF GRINDING TECHNOLOGY: REBUILD, EXCHANGE OR PURCHASE?

By the Rebuild Department at UNITED GRINDING



### **INTRODUCTION**

The productive life cycle of any machine tool, be it a lathe, mill or grinder, is limited. Eventually, a machine's accuracy and reliability will deteriorate beyond the level acceptable for precision manufacturing operations. How long that takes, however, depends on many factors, including the machine's basic structure, total hours of operation, maintenance history and more.

Shops that carefully track machine utilization have found that downtime amounting to 20 percent or more of available machine time generally represents an unacceptable burden on scheduling, maintenance and profitability. Others discover they need a machine with the capacity to take on a tough new job. When shop managers seeking to maintain full grinding production capacity are faced with these circumstances, they ask themselves: "Should I rebuild my CNC machine? Exchange it for a used machine? Or do I buy a new one?"



The answer to this question requires serious consideration of the available time, budget and manufacturing capacity a given shop possesses. This white paper will examine how three cutting tool shops – True Cut Tool Co., Triple-T Cutting Tools and Almar Tools Inc. – approached the rebuild, exchange or purchase decision in concert with their manufacturing solutions provider, UNITED GRINDING North America.

#### REBUILD

#### **OVERVIEW OF THE REBUILD PROCESS**

A true rebuild process involves the complete disassembly and reassembly of a machine as well as the final validation that confirms the machine has been restored to full functionality. The machine casting and enclosure go through a deep steam cleaning, followed by abrasive blasting and fresh coats of long-wearing paint. Everything from windows and lighting to wiring and hoses is replaced.

Once technicians replace all worn or outdated parts, a machine goes through a full series of geometric workups to compare its rebuilt configuration against industry-standard DIN 8632 inspection sheets that outline original specifications. Painstaking hand adjustments bring any out-of-spec surfaces back in line with new-machine performance. Finally, the rebuilt machine gets its certification paperwork, as a quality assurance team member documents the configuration in detail. With all its updates, upgrades and like-new capabilities, the machine qualifies for new warranty coverage.

One OEM that has invested in its ability to perform full rebuilds of its equipment is UNITED GRINDING North America, which has continually expanded its capacity for machine rebuilds since it began offering the service in 2010. Today, the Rebuild Department performs complete service, upgrade and retrofit work for BLOHM, MÄGERLE, STUDER and WALTER machines. To maintain brand-specific capabilities and specifications, technicians train at factory sites in Europe; to offer exceptional service to its customers, the department performs rebuilds at the company's North American headquarters in Miamisburg, Ohio.

#### **BENEFITS OF REBUILDING**

The primary benefit of rebuilding existing equipment is cost: Rebuilt grinding machines cost roughly 75% of the sticker price of new equipment. The finished machine looks, works and produces like new, with recommissioned geometry, renewed guideways and enhanced precision. In addition, the rebuilding process can maintain familiar control procedures, reducing the need to retrain operators on new equipment. Depending on how your company classifies expenses, a rebuilt machine may even qualify as a maintenance cost rather than as capital outlay, further contributing to potential savings.

A rebuilt machine will often perform far better than new, however, as the process often involves upgrading components rather than replacing them directly. Grinding machines often outlast their control technologies by 5-10 years, so reinstalling the same CNC would be impractical, given the limited parts availability for older technology. Instead, a new control extends machine lifespan as well as adds features, functions and convenience – and can make user-friendly conversational

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# True Cut Tool Co.

## New Carlisle, Ohio

**Founded:** 1972

Parts: Specialty Cutting Tools

**Industries served:** Automotive, medical, household appliances, plumbing and fixtures



WALTER HELITRONIC VISION

[The machine exchange] process generally offers similar cost savings to simply having a machine rebuilt, and the machine will include the retrofitted equipment and new software that the Rebuild Department provides as part of its process. programming and advanced functions available on a machine that reached the market before these operator-oriented approaches debuted.

Other up-to-date technologies enhance an older machine's precision and help cut cycle times when the grinder returns to service. For example, older motion encoders establish axis positions through a homing process that takes minutes to perform each time the machine powers up. Adding a modern glass-scale encoder enables the machine to store axis positions, increases resolution by a factor of 100 and adds improved servomotors with much greater accuracy.

#### **CASE STUDY**

For the New Carlisle, Ohio-based specialty tool manufacturer True Cut Tool Co., the rebuilding process ensured that the family-owned shop could cost-effectively maintain its grinding capacity – and for Scott Nicodemus, the son of company founder Larry Nicodemus and younger brother to company president Kendall Nicodemus, the reason is simple: "I already own the machine. Why get rid of one that's paid for?"

Scott Nicodemus has overseen the company's grinding operations for 30 years, so when the shop's 2008 WALTER HELITRONIC VISION began to have reliability issues, he looked for quotes on a solution. A new machine price was quoted to him by the distributor, but the team at UNITED GRINDING North America also suggested a rebuild – for more than \$100,000 less.

The Nicodemus family does more than work together, they plan together, and when it comes to integrating new technology, it may take a year to decide to add a machine. According to Scott Nicodemus, "When our board gets together, we mostly talk about cost and need. How fast do we need it? And what's the cost? For the rebuild, the decision took less than six weeks."

"We're only 45 minutes away from UNITED GRINDING," said Scott Nicodemus, "and we've always appreciated fast turnaround on repairs, especially for critical jobs. And with the rebuild, we have new technology, new rails, new guideways – it's rebuilt to new. To me, it may as well be a brand new machine."

# EXCHANGE

#### **BENEFITS OF EXCHANGING**

While choosing to rebuild a machine can offer shops significant cost savings, a complete rebuild does take time. The lead times are generally shorter than those for new machines, but it still requires several weeks to turn around a rebuilt machine. Many companies, however, do not have the luxury of waiting weeks to get back to part production – they need their machines up and running in a matter of days, not weeks or months.

For these shops, OEMs like UNITED GRINDING North America are able to exchange a used machine for a previously rebuilt one. This process generally offers similar cost savings to simply having a machine rebuilt, and the machine will include the retrofitted equipment and new software that the Rebuild Department provides as part of its process. But rather than wait for their machines to come back fully rebuilt, shops simply send UNITED GRINDING North America their old machines and receive an already rebuilt model from the Rebuild Department's stock.

# **Triple-T Cutting Tools**

West Berlin, N.J.

Founded: 1995 Parts: Custom Cutting Tools Industries served: Medical, aerospace, defense and subtractive metal cutting



WALTER HELITRONIC MINI AUTOMATION

# Almar Tools, Inc.

Camas, Washington

Founded: 1980

**Parts:** Rush-job custom cutting tools

Industries served: Aerospace, automotive, medical and electronics

#### **CASE STUDY**

Why should shops choose an exchange? For Triple-T Cutting Tools in West Berlin, New Jersey, this question that can be answered in a number of ways, as it learned when it traded in its first WALTER HELITRONIC POWER grinder on a UNITED GRINDING North America rebuilt WALTER HELITRONIC SL grinder in 2016 after seeing one demonstrated at IMTS 2016.

"It's like having a new machine, but at a significant cost savings," said Mike Thomas, vice-president of Triple-T Cutting Tools. "In particular, the versatile HELITRONIC TOOL STUDIO CAD/CAM software is convenient for scheduling and makes training our technicians easier. The younger guys can understand the software better, and with the rebuilt machines, we have the capacity to handle extremely complex tool geometries better than ever."

However, the turnaround time on a rebuilt machine can be prohibitive when a rush job is needed. To keep up with the pace of production necessary to meet its customers' needs, it needed its WALTER equipment up and running – and UNITED GRINDING North America had the solution in its machine exchange program. "We were down for maybe a week, tops," said Thomas, "and it would've been faster had we not added a few options in the process."

Despite the expedited delivery, the price still came in around 30% cheaper than a replacement machine, and the expanded capabilities helped as well. "With the two rebuilds we've done," said Thomas, "we've really expanded our ability to offer special form tools, particularly with the new software. And crash detection doesn't hurt either, especially when it comes to teaching new operators. But most importantly, the machine's design, its work envelope, its control – our team is already familiar with everything, so we can simply plug things in and get back to work."

# **PURCHASE**

#### **BENEFITS OF BRAND NEW**

The rebuild versus replacement decision often comes down to cost, time and expense categorization – but capacity and capability are just as important. Rebuilt machines can feature newer technologies, from advanced monitoring devices to cutting-edge control software. Indeed, except for the basic structure, a rebuilt machine is essentially brand new.

However, shops seeking to process especially complex parts and tool geometries need more than refinement and improvement. High-precision manufacturing solutions from companies like UNITED GRINDING North America have only grown more advanced, and shops that need features like easily integrated automation will often need to purchase a new machine to realize their production ambitions. Furthermore, the lower sticker price of rebuilding may not line up with companies' capital spending strategies, as deprecation, incentives and tax-related issues can vary widely, which can complicate financial decision-making – in some cases, new is cheaper after accounting for all variables.

#### **CASE STUDY**

On a daily basis, Almar Tools faces multiple new requests for custom tooling solutions. Most job turnaround times are a couple weeks, but if needed, the shop can complete and ship hot jobs within a few business days. To keep up with this pace, Almar Tools' President Alex Heredia and his brother, the company's vice president, added the shop's For every shop, there's a time and a budget for rebuilding, exchanging or purchasing. Whether a shop decides to rebuild, exchange or purchase manufacturing solutions, however, UNITED GRINDING North America offers support and technical guidance for all three. first CNC tool grinder, a WALTER 400, which, at the time, was the first of its kind on the entire West Coast. Within 30 days of using the new WALTER machine, they ordered a second one.

As these machines approached the end of their productive lifespan, Almar Tools was also the first company in the U.S. to take advantage of UNITED GRINDING North America's machine rebuilding service, saving more than \$100,000 in the process. However, as Heredia noted, there's a time and a place for rebuilding. "It doesn't pay to buy a whole new machine for regrinding, or machines our team plans on hand-loading for tools that don't require the absolute highest tolerances. But likewise, if you need to expand your capabilities with real state-of-the-art technology? That's when we choose to buy new."

In the last year, the company purchased two new HELITRONIC MINI AUTOMATION machines, high-production equipment designed to handle up to 1,500 tools with its FANUC robotic loader. While the rebuilding process offers new software and other retrofitted equipment, for high-throughput production of precision tools, the automation solutions and other design refinements available on new equipment are required for the level of productivity companies like Almar Tools need to keep up with the competition.

"Let me put it this way," Heredia said. "If you need a delivery van to just drive parts across town, do you go with a little used domestic van or shell out for an imported truck with all the bells and whistles? We go with the equipment that makes sense for our business's needs – and the big cost savings of rebuilt regrinding equipment help us to invest in new technology for part production."

# CONCLUSION

For every shop, there's a time and a budget for rebuilding, exchanging or purchasing. As True Cut, Triple-T and Almar discovered, decision-making can vary widely depending on when a machine goes down or when a big job comes through the door. Whether a shop decides to rebuild, exchange or purchase manufacturing solutions, however, UNITED GRINDING North America offers support and technical guidance for all three.