



CASE STUDY

By Tom Lang

COMPANY: KAPP Technologies

CUSTOMER: Fulton Precision Industries, Inc.

NEW ORDERS MEANT THAT FULTON PRECISION NEEDED A BETTER MACHINE, AND IT CHOSE THE NILES ZE 400 FOR ITS QUALITY, VERSATILITY, AND SPEED IN PRODUCING PARTS. HERE ARE THE DETAILS...

The Challenge

Fulton Precision Industries, Inc., operates a 78,000 square-foot manufacturing facility in McConnellsburg, Pennsylvania. Since 1995, Fulton has been providing contract-machining services for companies such as Caterpillar, Atlas Copco, and Mack/Volvo. Fulton is ISO 9001:2000 certified and has incorporated Caterpillar's Six Sigma Quality Methodology. Recently the company received several large orders and its capacity requirements increased considerably, so it needed a gear grinding machine that could transition from part number to part number much faster than the time it took to reset a gear shaver.

"We needed a machine that could run the full spectrum of our parts with the assurance of both high quality and increased productivity," says Walter Barmont III, president of Fulton Precision.

The Solution

After exploring its options, Fulton chose the NILES ZE 400 machine, primarily due to its ability to produce parts quickly. The NILES ZE machine series continues NILES' tradition of manufacturing gear grinding machines for grinding internal and external gears in single and small-batch production. The ZE machines deliver cost-effective solutions without sacrificing the high technical standards typical of NILES machines.

Founded in Berlin in 1898 under the name "Deutsche NILES Werke AG," NILES has maintained a long-standing tradition as one of the largest and most important manufacturers of high precision machine tools. Beginning in 1931 with the development of NILES generating

grinding technology for manufacturing high precision gears, NILES quickly became one of the world's leading manufacturers of gear grinding machines. In 1993, the NILES product line was expanded to include gear profile grinders.

Since 1997 NILES has been a member of the Kapp Group. This partnership has opened up new technical possibilities, such as the highly productive and precise grinding of large gears with non-dressable CBN grinding wheels and the development of large gear profile grinding machines up to 5000 mm (196 inches) in diameter.

The ZE machine can



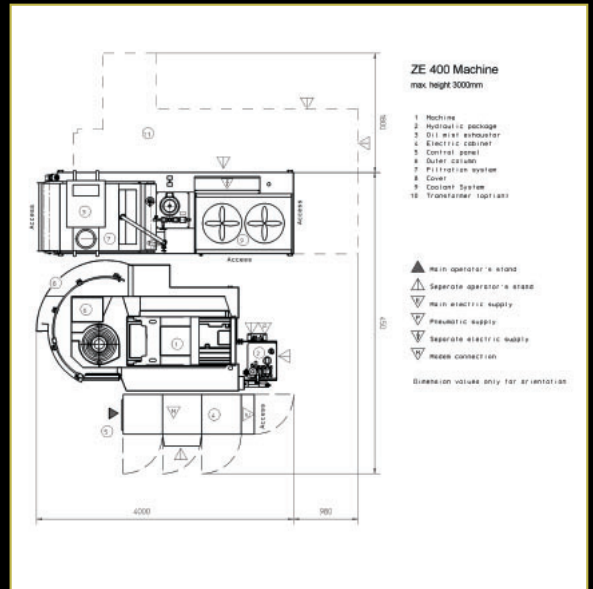
Fulton Precision chose the NILES ZE 400 because of its quality, versatility, and its overall ability to produce parts quickly.



The NILES ZE 400 grinds both internal (shown here) and external gears in single and small-batch production. The machine also grinds parts from solids or pre-cuts.



An acoustic-sensing device on the ZE 400 provides a graphic display on the machine control panel of the interface between the grinding wheel and the dressing roll during the dressing cycle, and also between the grinding wheel and workpiece during the grinding cycle.



The NILES ZE 400, part of the KAPP Group, is a versatile yet compact gear grinding machine. It is capable of using both non-dressable CBN and dressable vitrified grinding wheels. For CBN grinding, a highly accurate quick wheel exchange system dramatically reduces tool set-up times.



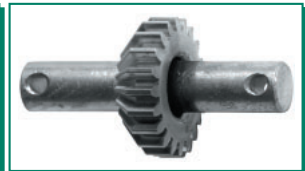
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grind a part from solid or pre-cut. Workpiece data is directly input into the Siemens control via an operator interface developed by NILES. The CNC dressing device and measuring equipment make necessary wheel adjustments prior to grinding.

The CNC-dresser generates profile modifications. Lead modifications are created through axes interpolation. An acoustic-sensing device provides a graphic display of the interface between the grinding wheel and the dressing roll during the dressing cycle and also between the grinding wheel and workpiece during the grinding cycle.

Realized Benefits


"Fulton bought the NILES ZE 400 to expand our processing capabilities," according to Barmont. "To this point we shipped 'green' parts to Caterpillar and they finished them. By adding the NILES machine, we can now provide a 'finished' part that's ready for assembly."

The capabilities of the ZE 400 allow Fulton to rework some parts that would have previously been scrapped. With this machine's

probing abilities, Fulton is able to pick up a hobbled spline or gear on a shaft part and make it longer if it is too short, or remove a small amount of material on an oversized gear or spline, which would be very difficult to re-hob.

"We found the NILES to be the best suited for our needs," says Barmont. "They have knowledgeable people who are willing to help with any of our needs. Kapp Technologies' Regional Sales Manager, Rick Piller, presented this machine to us and we were—and still are—convinced that the ZE 400 was the machine for us. If someone is in the market for a CNC gear grinder, I would recommend a NILES machine from Kapp. They have the machine, knowledge, and support to ensure success."

Conclusion

Using high precision mechanics, state-of-the-art controls and drive technology, and user-friendly software, the NILES ZE 400 machine establishes ideal conditions for versatile, economical, and successful grinding at Fulton Precision. 

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