

Oversize avoidance

Removing additional material after boring a hole can be done to achieve the hole's specification, but scrap can result if boring creates an oversize hole. Periodically, Advanced Machine & Engineering Co. was producing oversize holes in cast iron tombstone workholding fixtures. The boring application removes 0.006" to 0.008" of material to produce a hole from 0.7519" to 0.7523" in diameter.

Rockford, Ill.-based AME, which also performs contract manufacturing and supplies machine components, wanted to find a boring head to eliminate oversize holes while enhancing ease of use and reducing cycle time. AME tested various tools and one from Wohlhaupter Corp., Centerville, Ohio, stood out. "Within hours of use, we knew the

END USER: Advanced Machine & Engineering Co.
(800) 225-4263
www.ame.com
IS #301

CHALLENGE: Eliminate production of oversize holes when boring.

SOLUTION: An adjustable boring tool without any backlash.

SOLUTION PROVIDER:
Wohlhaupter Corp.
(937) 885-1878
www.wohlhaupter.com
IS #302

Digi-Bore would meet those criteria," said Brad Patterson, AME's director of

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quality and continuous improvement. "The Digi-Bore bored holes 50 to 70 percent faster than what we had been using with 10 to 30 percent tool life improvement, which made management happy."

An operator can manually adjust the Digi-Bore boring tool in increments of 0.0001" to compensate for tool wear, which is determined by monitoring the process. The previous boring tool was also manually adjusted, but the dial component had some backlash in it, which created uncertainty among operators that they might cut a hole oversize after an adjustment. "With the Digi-Bore, if you dial the tool out 0.0001" or 0.0002", you get 0.0001" or 0.0002" every time," Patterson said. That level of consistency and accuracy removes some of the human error that was present in the boring process, he added.

AME's machine operators accepted the tool, which became popular over time. "We recognize the need for 'lean' and employee involvement in all our processes," Patterson said. "Management wasn't forcing the shop floor to use the tool—the shop floor was 'pulling' the tool into more and more applications."

That resulted in AME purchasing more boring heads and bars to satisfy different applications identified by the operators.

Overall, Patterson sees the Wohlhaupter tool as a win from several points of view. "We make better holes faster with less setup, which allows us to compete globally and has supported our lean/employee empowerment processes," he said. "It is a good example of technology helping people do a better job with less effort."



Wohlhaupter's Digi-Bore boring tool allows an operator to adjust the tool in 0.0001" increments without worrying that he may cut a hole oversize after adjustment. Advanced Machine & Engineering's primary application for the tool is boring cast iron tombstones (inset).