



MODULATED TOOL PATH

MTP Chip Breaking System



William E. Barkman, Ed Babelay and the University of North Carolina–Charlotte

Technology

The MTP chip breaking system is a cost-saving solution for machining operations that create continuous chips. These chips can damage the workpiece or machine tool, pose hazards to the machine operator, complicate cleanup of the work space and cause operation delays. The MTP chip breaking system creates a significantly safer operating environment and can reduce cleanup, repair and replacement costs.

Features of the chip breaking system:

- computer modeling and simulation techniques
- selectable chip lengths
- automatic chip breaking motion
- no special cutting tool required
- works with all materials, part shapes and machine configurations
- compatible with light depths of cut

Benefits of the chip breaking system:

- eliminates down time resulting from chip bird nests
- simplified, less costly chip processing/recycling
- reduced machine repairs
- decreased product delivery delays
- improved workplace safety
- reduced cutting tool temperatures

Markets

- turning and boring operations involving ductile materials
- new and existing machines

Commercial Readiness

MTP Chip Breaking System, with a Technology Readiness Level of 8:

- has been proven to work in its final form under expected conditions
- is seeking an industrial partner to fully commercialize this technology and
- a prototype is currently in development use at Y-12 National Security Complex

Requests for proposals for commercialization opportunities are currently being pursued. Further development or investment costs are expected to be ~\$250,000 and take 1 to 3 years to complete.

Intellectual Property

The Y-12 National Security Complex and the University of North Carolina–Charlotte have patented and patent-pending protection for this technology.

- U.S. Patent Application No. 12/251,247
- Patent Application Publication No. US 2009/0107308.
- 12/760,115
- 12/760,159

The MTP Chip Breaking System was awarded an R&D 100 Award in 2010.

Contact

Gina Davis
Director, Marketing and Commercialization
Program Management

Y-12 National Security Complex
P.O. Box 2009
Oak Ridge, TN 37831

Office: (865) 576-0181
Cell: (865) 963-5646
Email: davisgk@y12.doe.gov
LinkedIn: Y-12 Office of Technology
Commercialization and Partnerships
Web URL: www.SecretCityIP.com

