



**The Grinding Doc's**

# **Publication List**

**Academic and trade-magazine publications by  
Jeffrey A. Badger, Ph.D.,  
"The Grinding Doc"**

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# Academic Publications by Jeffrey Badger

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- The effect of wheel eccentricity and run-out on grinding forces, waviness, wheel wear and chatter, with S. Murphy and G. O'Donnell, *International Journal of Machine Tools and Manufacture*, Vol. 51, Oct/Nov 2011, 766-774.
- Microfracturing ceramic abrasives in grinding, sole author, *ASME 2012 International Manufacturing Science and Engineering Conference MSE 2012*, June 4-8, 2012, Notre Dame, Indiana, USA.
- Particularities of grinding high speed steel punching tools, with P. Krajnik, R. Drazumeric, J. Kopać and C.M. Nicolescu, *Advanced Materials Research*, Vol. 325 (2011), pp. 177-182.
- Loading in grinding: chemical reactions in steels and stainless steels, with S. Murphy and G. O'Donnell, *Advanced Materials Research: Advances in Abrasives Technology*, 2010, Vol. 126-128, 597-602.
- The Great Divide: Grinding in academia and production, sole author, *Proceedings of the 4th Swedish Production Symposium*, 2011, 3-5 May 2011, Lund, Sweden. Reprinted by several abrasives-related institutions and trade magazines.
- A novel and more efficient way to grind punching tools, with P. Krajnik, R. Drazumeric and C.M. Nicolescu, and J. Kopać, *Proceedings of the 4th Swedish Production Symposium*, 2011, 3-5 May 2011, Lund, Sweden.
- Cooling in grinding – environmental considerations of quantity, disposal and energy consumption, sole author, *Proceedings of the CIRP 7th Global Conference on Sustainable Manufacturing*, Chennai, India; 2-4 December 2009.
- Truth and eccentricity in grinding: practical implications, with S. Murphy and G. O'Donnell, *Proceedings of the CIRP 5th International Conference on High Performance Cutting*, Gifu, Japan, October 2010.
- Factors affecting wheel collapse in grinding, sole author, *CIRP Annals*, 2009. Presented at CIRP Annual Meeting in Boston, MA USA; August 2009.
- Aggressiveness in grinding, sole author, *CIRP 3rd International Conference on High Performance Cutting*, Dublin, Ireland, 12-13 June 2008
- Grindability of conventionally produced and powder-metallurgy high-speed steel, sole author, *CIRP Annals*, 2007. Presented at CIRP Annual Meeting in Dresden, Germany; August 2007.
- A comparison of two models to predict grinding forces from wheel surface topography, with A.A. Torrance. *International Journal of Machine Tools & Manufacture*, 2000. 1099-1120.
- The relation between the traverse dressing of vitrified grinding wheels and their performance, with A.A. Torrance. *International Journal of Machine Tools & Manufacture*, 2000 1787-1811.
- Two models of abrasive wear and their application to grinding. Presented at the *36th Annual Technical Meeting, Society of Engineering Science*, The University of Texas at Austin, October 25, 1999.
- A computer program to predict grinding forces from wheel surface profiles using slip-line fields. with A.A. Torrance. *Proceedings of the Int. Sem. on Improving Machine Tool Performance. San Sebastian, Spain, 1998.*
- Sliding friction and heat generation in pressurized U-cup seals under low-speed reciprocating conditions. with T. C. Ovaert. *ASME Trans., Journal of Tribology*, 120(2), 325-331, 1998.

# Trade-magazine publications by Jeffrey Badger

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- **Cutting Tool Engineering.** Dr. Badger is author of the regular question/answer column titled "Ask the Grinding Doc" in the leading American trade magazine in the metal-cutting and grinding industry.

**Ask The Grinding Doc columns:** 3/2001: wheel nomenclature; 5/2001: chip-formation; 7/2001: residual-stress measurement; 9/2001: SG grits; 12/2001: cooling; 2/2002: power monitoring; 4/2002: oxidation burn vs. genuine thermal damage; 6/2002: wheel grade; 8/2002: surface quality; 10/2002: standardizing parameters; 12/2002: surface finish, burr in carbide; 1/2003: reducing passes; 3/2003: wheel sharpness in dressing; 5/2003: measuring wheel wear; 7/2003: slippery wheel salesmen; 9/2003: tool-failure analysis; 12/2003: residual stress warpage; 2/2004: coolant viscosity; 4/2004: power monitoring; 6/2004: SG segments; 8/2004: SG segments II, grindonomics; 10/2004: burr reduction; 1/2005: surface finish; 4/2005: aggressiveness number; 6/2005: cluster diamond, reducing cycle times; 8/2005: cermets, rotary dressing speed ratio; 10/2005: dressing dwell time vs. # revolutions; 1/2006: using "SG" wheels correctly; 3/2006: water vs. oil coolants; 6/2006: bursting speed; electroplated CBN; 8/2006: wheel collapse, diamond-wheel sticking; 10/2006: rough-dressing for high stock removal; 4/2007: false nip in cooling, copper tube cooling nozzle; 6/2007: grit size & root radius; 8/2007: spindle push-off, coolant hydroplaning; 10/2007: cheap wheels; cleaning nozzle; 2/2008: overlap ratio in cylindrical OD grinding, "suck up" due to heat; 4/2008: push-off, oil vs. water; 10/2008: plunge-disc dressing of CBN; 11/2008: wheel grade from different suppliers, overstroke; 2/2009: cylindrical CBN wear, grit size; 4/2009: Aggressiveness in CBN; 6/2009: dealing with clueless salesmen; 8/2009: eyeballing surface finish in corners; 12/2009: porosity in cylindrical grinding, hybrid-bond wheels, ANSI 7.2; 2/2010: cycle time in large plates, overlap ratios; 4/2010: wheel truth & eccentricity, loading in cermets, face grinding; 6/2010: integer values in cylindrical grinding, uni/anti dressing; 8/2010: electroplated wheel conditioning, coolant velocity; 12/2010: up vs. down grinding, NQ Quantum grits, overlap in traverse cylindrical grinding; 2/2011: 10% dressing depth, sharp corners in carbide, diamond flat areas; 4/2011: self-excited vs. forced chatter; 6/2011: optimization of Junker surface grinder; 8/2011: cut-off wheel testing; 12/2011: Chinese wheels, measuring temperatures, CBN temperature and power; 2/2012: dry grinding, constant wheel surface speed, shoe nozzle; 4/2012: electroplated breaking in, temperature vs. depth for burn depth; 6/2012: grit penetration depth in carbide, diamond-wheel sticking; 8/2012: material-removal rate as cause of burn.

**Full-length articles:** 12/2000: Grinding burn in steel; 6/2012: Custom superabrasive wheels; 7/2003: Powder-metallurgy steel; 8/2004: Up vs. down grinding; 4/2005: High-speed steel conference; 6/2005: Wheel fundamentals; 5/2006: Turbine-blade grinding of nickel alloys; 6/2008: Aggressiveness in grinding to find wheel "sweet spot"; 3/2009: Grinding Pictorial Odyssey I; 5/2009: The Grinder's Toolbox for cycle optimization; 10/2010: Grinding Pictorial Odyssey II.

- Erasteel Brochure Grinding of High Speed Steel (translated into French, German, Italian, Portuguese, Spanish, Swedish, Japanese, Korean and Chinese).
- *Grinding & Abrasives Magazine, Grindability of High-Speed Steel.* Dec-Mar. 2003. pp. 16-19.
- Other Publications: Various articles in:
  - Steel Times International* (UK)
  - Utensili E Attrezzature* (Italy)
  - Precision Toolmaker* (UK)
  - Werkzeug Technik* (Germany)
  - Modern Machine Tools* (US)
  - Modern Machine Tools* (India)
  - Industrial Diamond Review* (USA)
- **The Book of Grinding.** Attendees to Dr. Badger's courses receive *The Book of Grinding*, 1800 pages of practical grinding information developed by Dr. Badger. Soon to be published in Kindle audio/video format.



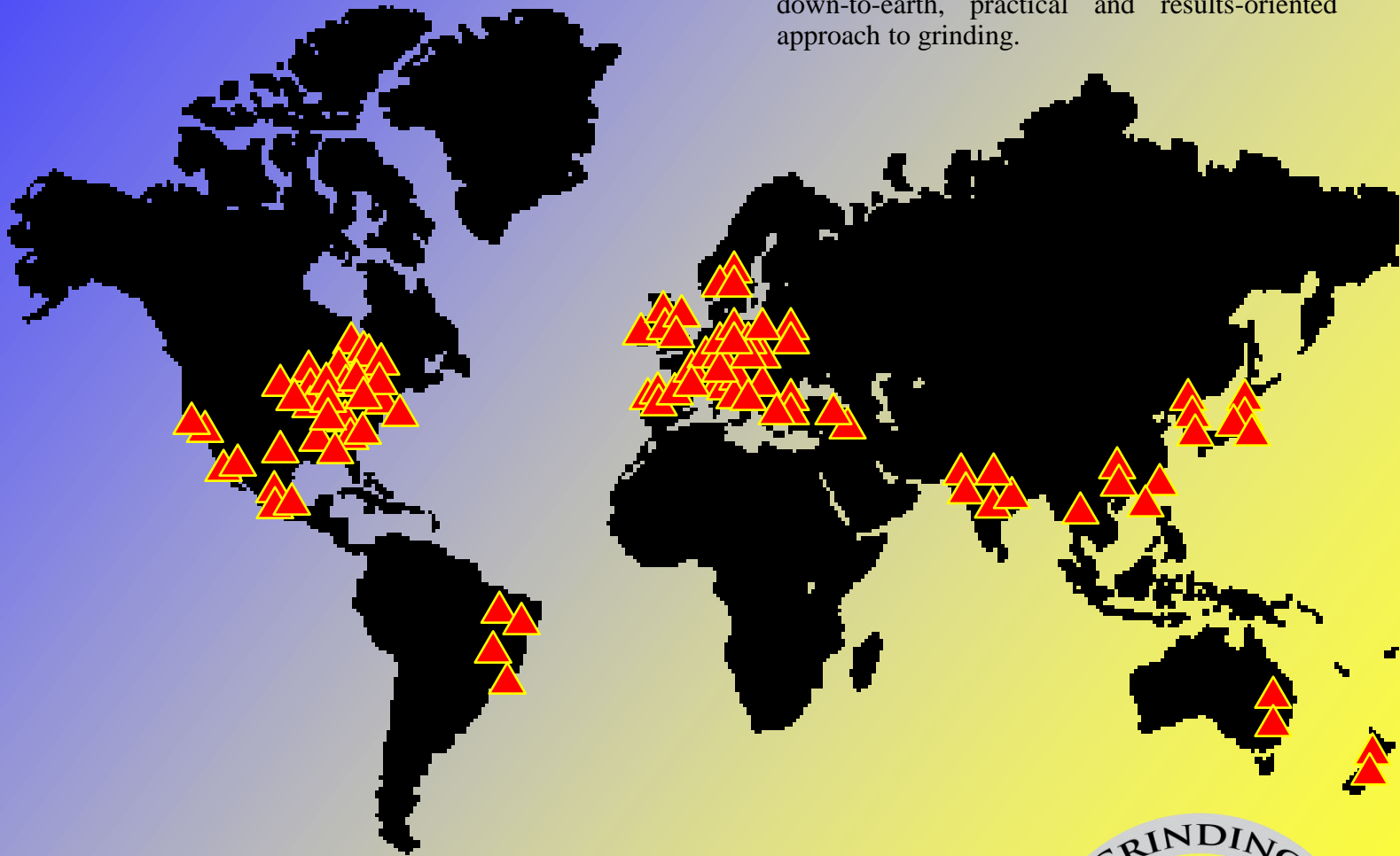
## About *The Grinding Doc*

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**The Grinding Doc:** Dr. Jeffrey Badger has a degrees in Mechanical Engineering from The University of Texas at Austin, Pennsylvania State University and Trinity College in Dublin, Ireland. He is known as “The Grinding Doc” from his question/answer column in *Cutting Tool Engineering*. He works independently as an expert consultant in grinding.

Jeff Badger has worked in grinding facilities around the world and brings a no-nonsense, down-to-earth, practical and results-oriented approach to grinding.



### Contact

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