

# PARADIGM®

## DIAMOND WHEELS FOR THREAD GRINDING



Superior Corner Holding  
Meets Industry's Fastest  
Material Removal Rates

Norton Winter Paradigm thread-grinding diamond wheels combine improved material removal rates with fine finish and ultimate corner holding for superior manufacturing performance on carbide operations.

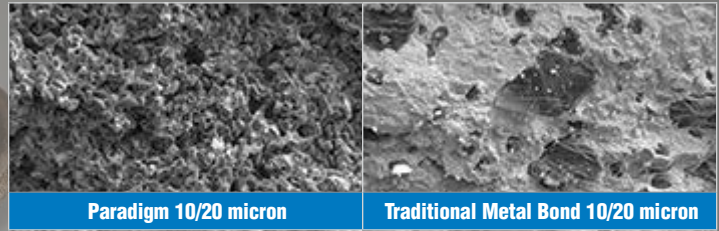
### FEATURES & BENEFITS

- Uniform, fine grit diamond grain generates superior finishes
- High diamond concentration ensures superior form holding throughout wheel life
- Porous structure promotes faster grinding
- New tough bond alloy delivers longer wheel life
- Truable online and offline for maximum productivity

ONLINE TRUING & DRESSING CAPABILITY  
LOWER TOOLING COST | BETTER EDGE QUALITY

A **PARADIGM SHIFT** IN CUTTING TOOL MANUFACTURING™





### THE PARADIGM SHIFT

Increase productivity/decrease costs:

- Up to 46% porosity
- + > 2:1 diamond to bond ratio
- + Metal matrix forms an ionic bond with the diamond particles
- + Finer grits and more working particles with higher exposure
- = Lower cutting energies with highest quality part edges and finish

### MADE-TO-ORDER AVAILABILITY

All Norton Winter Paradigm diamond wheels are made to your precise requirements.

Paradigm wheels for thread grinding taps and screws are available up to 16" in diameter. Typical wheel shapes include 1E1, 3E1, 4E1, and 14E1.

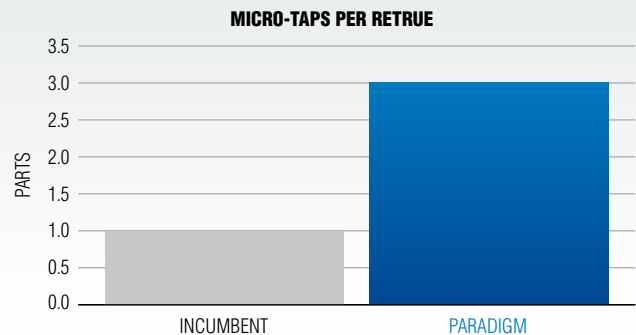
GENERAL APPLICATION PARAMETERS	
Wheel Speed:	9,000-16,000 SFPM
Infeed Rate:	Up to 3" per minute
Depth of Cut:	Up to 0.080"
Truing/Dressing Parameters:	For tap grinding it is recommended that Paradigm wheels be trued on the machine for the greatest form accuracy. For the best dresser life, use a sintered diamond roll with CVD reinforcement. Optimal dressing parameters will vary by operation. A surface speed ratio of the uni-directional diamond roll to be 0.4X the Paradigm wheel speed in SFPM or M/S and a depth per pass of 0.0001" are starting parameters.
Coolant:	Oil or water soluble emulsion

DIAMOND STARTING SPECIFICATIONS FOR CARBIDE TAPS AND SCREWS	
DES10/20MIC-E160-P200C	Micro-tap
DES6/12MIC-E160-P200C	Micro-tap
DES30/40MIC-E160-P200C	Standard thread/tap
DES20/30MIC-E160-P200C	Standard thread/tap
SD400-E168-P100C	Standard thread/tap

Prior to order entry, please contact your Norton representative for specification recommendations to ensure maximum grinding performance, quotations, and current lead-times.

### Case Study – Carbide

<i>APPLICATION:</i>	Thread grinding micro-taps 50µm maximum root flat
<i>MACHINE:</i>	Tap grinder
<i>NORTON WINTER PRODUCT:</i>	1E1 wheel shape 7" x 0.345" x 3" Paradigm DES6/12MIC-E160-P200C
<i>INCUMBENT PRODUCT:</i>	8 micron diamond vitrified bond
<i>RESULTS:</i>	The Paradigm wheel increased the number of parts per dress by 200% and reduced the cycle time by 78%



**BEST** – NORTON WINTER Paradigm

**BETTER** – NORTON WINTER G-Force

**GOOD** – NORTON WINTER B610 / B80

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**FORM #8463** REV. 08/18

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