

3M™ Flexible Pad Conditioner

Long-lifetime, low-defect CMP pad conditioning and cleaning

3M™ Flexible Pad Conditioner is a transformative solution to the unique challenges of conditioning and texturing CMP pads.

Constructed of a durable unibody polymer, it pushes beyond the limits of traditional diamond pad conditioning to enable a new level of customization and performance, including:

- **Tunable Design:** Bristles, design and material that can be tuned to the hardness and structure of your pad, including a broad range of options tested for compatibility with industry standard pads.
- **Helps Reduce Defects:** Enables low-debris cutting followed by effective pad pore cleaning.
- **Long Lifespan:** Stable removal rate and performance throughout the pad lifetime.

Advancing conditioner innovation

High porosity, tight defect tolerances, and modern slurries pose a new set of challenges to CMP pad conditioning and cleaning.

With 3M™ Flexible Pad Conditioner, 3M has combined the quick pad break-in time and powerful conditioning performance of diamond pad conditioners with the effective defect performance of brushes.

Learn more about the unique benefits it offers for maintaining your CMP pad performance over time.

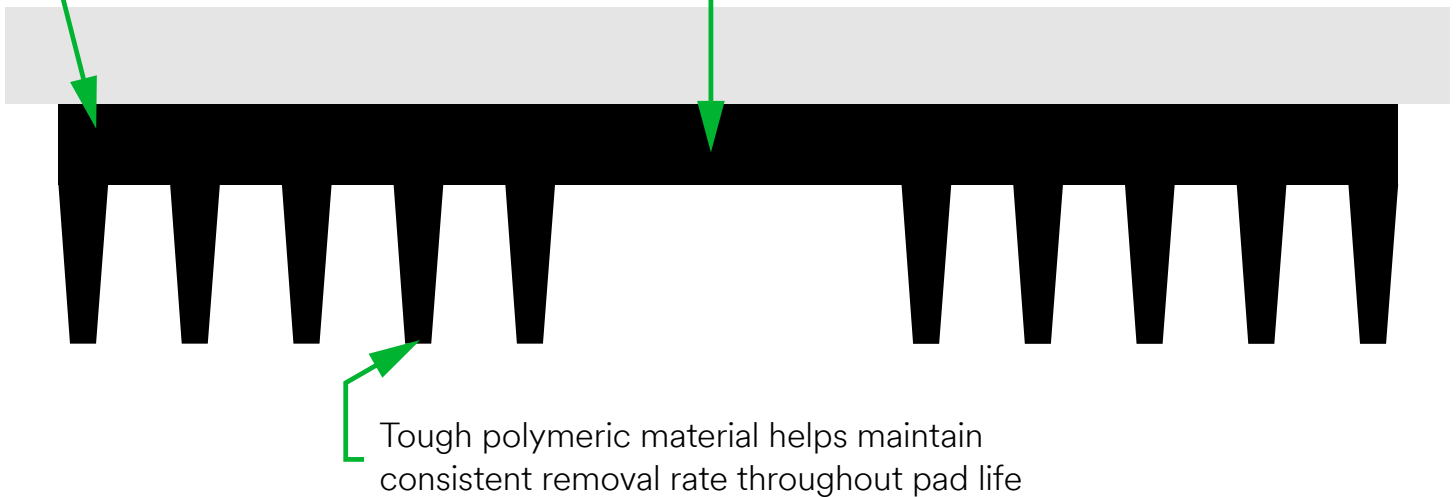


About 3M™ Flexible Pad Conditioner

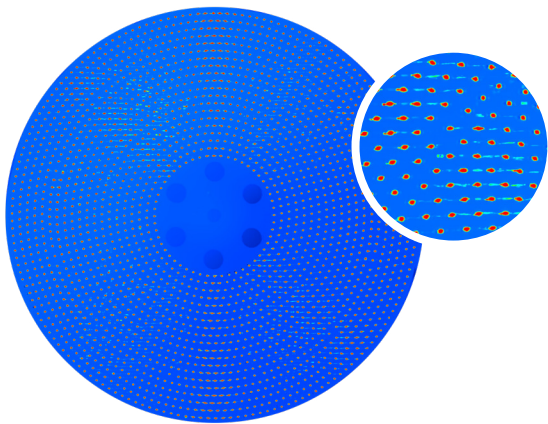
Exceptional construction

Non-metallic cutting surface helps reduce metal contamination risk

Unibody construction for highly consistent shape disk-to-disk and virtually no bristle loss

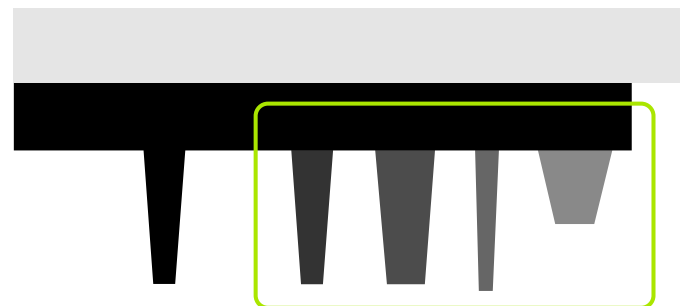


Controlled and consistent number of working bristle tips



High-resolution image analysis shows that nearly all bristle tips (shown in red) will make contact with the pad surface, helping enable very consistent conditioning performance during the disk lifetime. In addition, the tightly controlled manufacturing process helps reduce disk to disk variability in working bristle tips to a minimum.

Tunable material hardness and bristle shape



Select your preferred bristle hardness and shape from 3M's library of options, to enable customized interactions tuned for your pad and process.

Pad conditioning and texturing applications



Quick Break-in, Long Lifespan

- **Quick Break-in:** Initial aggressiveness helps enable speedy pad break-in.
- **Staying Power:** Minimal bristle wear over time

Before pad use



After pad use



Improved Defect Performance

- **Smaller Debris:** Average debris size 5-10X smaller than diamond pad conditioners.
- **Efficient Slurry Distribution:** Very efficient at distributing slurry and moving debris away from the pad.
- **No Diamond Scratching:** The toughened polymer used in 3M™ Flexible Pad Conditioner is very durable and resistant to fracturing
- **No Metal Contamination:** Non-metallic cutting surface. The carrier can also be coated for additional protection.

Pad cleaning applications



Easy to Clean

- Optimized spacing minimizes trapped slurry and debris compared to conventional brushes.
- Tunable bristle material is easier to clean with water than conventional products.



Efficient Slurry Transport

- Tunable bristles are highly efficient at transporting slurry and debris.
- Testing shows low accumulation of ceria, cationic silica and other difficult-to-clean slurries.



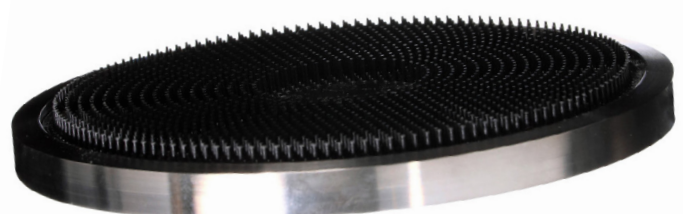
Virtually No Bristle Breakage

- Tough unibody polymer materials are optimized for near zero breakage.



Consistent Bristle Contact

- Controlled and consistent number of working bristles compared to conventional brushes.



3M™ Flexible Pad Conditioner benefits, compatibility and disclaimer

Additional Benefits

Total Cost of Ownership

Longer pad lifespan and reduced defects compared to conventional diamond disks can help you improve your overall cost performance.

Compatibility

Pads

- Soft and ultra-soft pads, particularly poromeric and low modulus pads
- 3M™ Trizact™ CMP Pads

Processes

- Cu Barrier
- Cu BPR
- Metal buff
- Dielectric buff
- Wafer cleaning/pre-clean modules
- Others in testing

Coatings

All 3M™ CMP Pad Conditioner Coatings can be applied to the carrier for additional protection

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