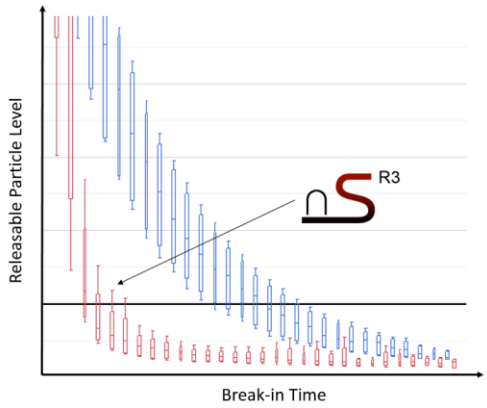
RIPPEY™
An ITW Company

nanoShear R3 PVAc Brushes

for reduced brush break-in

FEoL • MoL • BEoL



Description

Rippey nanoShear R3 brushes were designed to meet stringent post-CMP defect requirements for ≤10nm logic devices, NAND flash technology, and emerging memory products. nanoShear R3 brushes provide the lowest level of releasable and trace metal contamination on the market. Ultra-pure nS R3 PVAc brushes result in shorter break-in times and improved CMP tool utilization.

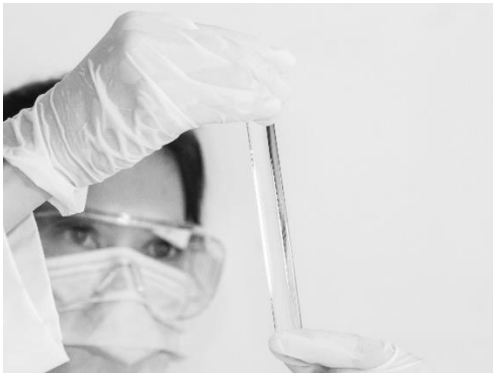
Features

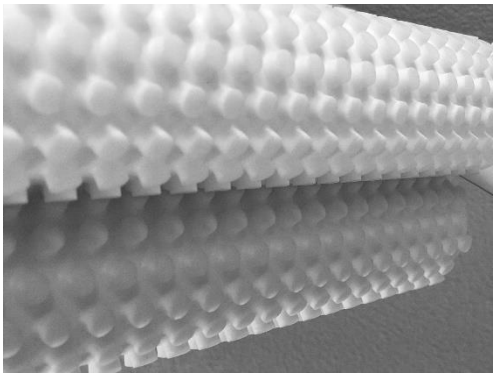
- **Ultra-Purity**

  nanoShear R3 brushes undergo a chemically and physically enhanced multi-step cleaning process. This process improves hydrolysis and metal chelation of process-related PVAc contaminants. nanoShear R3 brushes are processed exclusively on Rippey's proprietary Cyclone™ flow-through cleaning systems.

- **Enhanced Quality**

  All nanoShear R3 brushes are scrutinized to the most demanding specifications. Effluent Liquid Particle Count (LPC) monitoring (>50nm) and trace metal contamination by ICP-MS is standard. nanoShear R3 brushes are vacuum sealed in low MTR/OTR transmission packaging to minimize transportation and storage-related quality issues.





nS R3

Rippey *(a division of ITW Contamination Control)*
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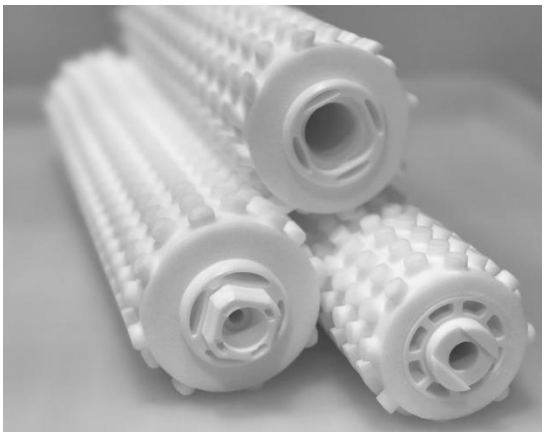

Applications

Rippey nanoShear R3 brushes are compatible with all major CMP OEMs. Mandrels and tool interfaces are designed for quick and simple exchange.

To prevent bacterial growth and ensure long shelf-life, brushes come preserved in H_2O_2 or NH_4OH, or can be e-beam sterilized.

Depending on the application and cleaning requirements, nanoShear R3 brushes can be customized with various nodule formats.

OEM	Applied Materials	Ebara	
System	Reflexion® LK, LK Prime™	FREX 300S(2)	FREX 300X(3SC)
PN	*3F*N-70-31NM-0317	*3F*N-38-18NM-0310	*3F*Y-60-32NM-0310

NOTE: nanoShear brushes are only available in 300mm

✶ 3 F ✶ N

- ✶ Preservation
  - (H) 1.00%wt. H_2O_2
  - (M) 0.25%wt. NH_4OH
  - (E) e-beam
- F PVAc Formulation
  - (S) Symmetry
  - (2) F2
  - (E) Eclipse
  - (C) Eclipse HCS

Quality

Quality is crucial, that is why Rippey nanoShear R3 brushes are tested and conform to the most demanding specifications. PVAc brush releasable and trace metal contamination are the lowest available.

Metric	unit	Method	nS	nS R2	nS R3
Final LPC	-	Effluent	≤1000	≤2000	≤2000
			Sum>0.2µm	Sum>0.1µm	Sum>0.05µm
Ion Contamination	ppm	Effluent, IC	≤0.10[1]	≤0.10[1]	≤0.10[1]
			≤1.00[2]	≤1.00[2]	≤1.00[2]
TM Contamination[3]	ppb	Acid Extract, ICP-MS	NA	NA	≤50

[1] Br^-, NO_2^-, NO_3^-, PO_4^{3-}, Ca^{2+}, Mg^{2+}, K^+, Na^+

[2] Cl^-, SO_4^{2-}

[3] Na, Mg, Al, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn

nanoshear™

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